

NEW THIS ISSUE: Advanced Diver Series

skin diver

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JANUARY 1983

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SCUBA SCULPTURE-A New Art Form

DIVE GUIDE TO THE VIRGINS



EQUIPMENT REPORTS: Scubapro's Panther • Seasquirt 18
Sid-Pac Gear Bags • Hutchison 380 • Mares' MR 12 Regulator
Scuba Filler Filter • Henderson Drysuit Valves

Smaller is Bigger
Scubapro's Mark IX is a smaller, lighter, improved version of the famous, often copied Scubapro Mark VIII. Because of its smaller size, fewer parts, and newer design features, the Mark IX is destined to lead innumerable divers to the fact that smaller is bigger in scuba.

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Many regulators perform well at high tank pressures but not at low tank pressures. The Mark IX performs equally well at both high and low pressures providing substantially more air flow than other regulators at or below 1000 PSI.



The smaller, lighter weight Mark IX piston generates a greater amount of air flow with less friction and resistance. As a result, less effort is needed to balance air flow when tank and depth pressures change.



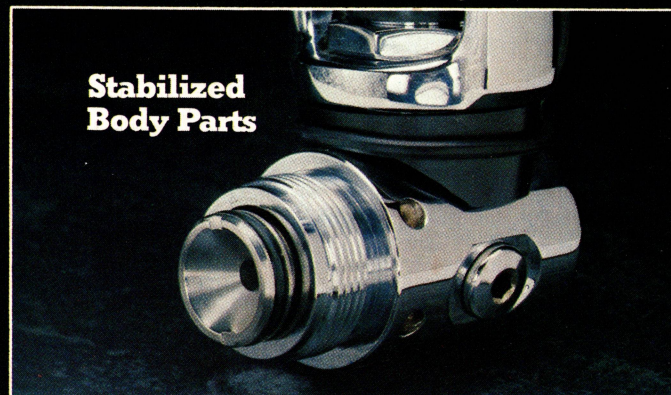
The Mark IX's new, conical shaped filter has 300% more filtering capability than conventional flat filters. The new conical filter functions especially well at low tank pressures.

A NEW HIGH IN LOW PRESSURE BREATHING

Introducing Scubapro Mark IX

Stabilized Body Parts

Unlike any other regulator, the Mark IX houses all its moving parts within the body making for a stronger, more precision valve. Because of the one piece construction of the body, the moving parts are held firmly in alignment reducing friction and inefficiency. The result being a longer life and increased reliability.



Stabilized Body Parts

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The Mark IX regulator has 5 low pressure and 2 high pressure ports. the 5 low pressure ports are positioned for any hose orientation to suit personalized gear arrangement.

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The Mark IX's increased efficiency is also the result of the new and exclusive Scubapro Super Flow Hose that allows 33% more air flow at lower tank pressures over conventional hoses. (The Scubapro Super Flow Hose is now interchangeable with all standard low pressure hoses and is now used on all Scubapro regulators.)

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New 100 page product selection guide available at your authorized Scubapro dealer

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S seems as if everyone is coming out with transparent fins these days, and many of them look similar to the revolutionary Plana and Power Plana.

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But looks are the *only* thing these imitator fins have in common with Plana and Power Plana.

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And you'll find Tecralene® *only* in Plana and Power Plana. No other fin matches their power, resilience or features.

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signed, soft and comfortable foot pocket will never separate from the blade. And both the blade and the foot pocket are impervious to ozone and ultraviolet attack.

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DON'T CONFUSE THE IMITATORS WITH THE INNOVATORS.



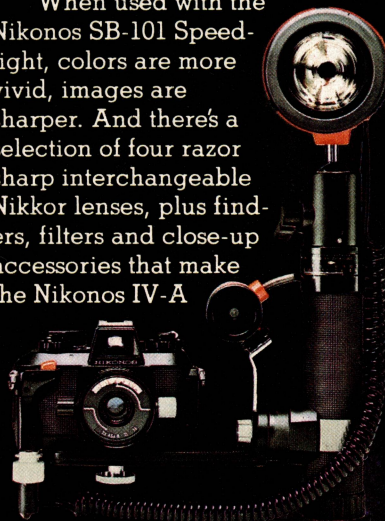
(PLANA AND POWER PLANA)

It's exciting down there. But no one topside really knows just how exciting it is. And just talking about it doesn't help. But it's easy to bring back all the excitement of every dive with the Nikonos IV-A. The Nikonos IV-A is a 35mm camera with a highly reliable, highly accurate automatic exposure system.

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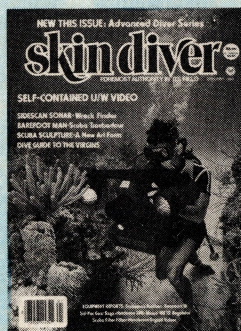
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skin diver

Volume Thirty-two Number One

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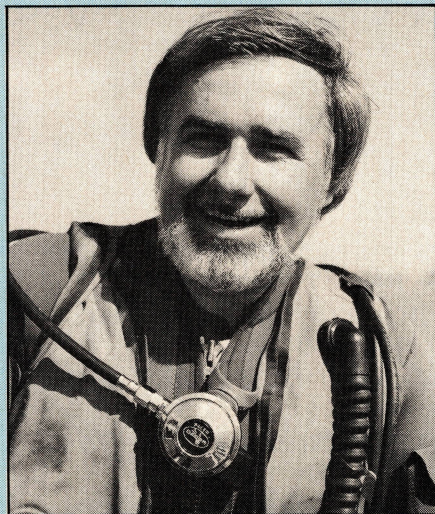
COVER

Diver Dick Clarke tests out a self-contained underwater video camera/recorder system on a medium depth reef off Freeport, Grand Bahama. Photo/Wulf Koehler. For more on this unique video system see page 24.

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SDM Editorial

BY THE PUBLISHER



C-CARDS...THE CREDIBILITY GAP

Resort divemasters and dive boat operators are facing a serious dilemma which is causing growing concern and frustration. Tens of thousands of people are flocking to the Caribbean for dive vacations that could turn into dive disasters. They arrive with eager anticipation and plastic C-cards, but without experience or knowledge of how to actually dive. Worst of all, they think they are qualified to dive because they carry a C-card.

As one divemaster describes it, "these people are accidents looking for a place to happen. They jump in the water with half their equipment still on the boat. Some cannot equalize their ears while others cannot even clear the water from their masks. They become totally exhausted swimming 100 yards on the surface, or swim downstream of the boat in a current, or run completely out of air less than halfway through a normally programmed dive. They don't know how to inflate their newly purchased BC's, weight themselves properly or switch to a snorkel on the surface." Divemasters embittered by such glaring incompetence often refer to these persons as "turkeys" or "thrashers" or other less kind terms.

The resort divemasters are understandably disturbed by this onslaught of incompetents. It makes their job of conducting dives ten times more difficult and a whole lot more dangerous. Every time divemasters have to rescue, panicked, thrashing divers, they are risking their lives as well. This becomes clearly evident on a wall dive when a guest freaks out at 120 feet and begins struggling with

the dive guide. It is infuriating to think that divemasters must risk their lives unnecessarily simply because divers are not properly prepared for open water diving. Many dive resort owners fear a scuba accident will generate bad publicity, an increase in their insurance premiums and perhaps government regulations. And, to add insult to injury, the dive operator is likely to be sued by the family even though the accident was clearly the fault of the victim.

The resort operators are growing more nervous as this problem continues to escalate. Inexpensive, direct jet service from the U.S. to the islands has opened the floodgates to an onrush of neophyte divers. Some resort operators estimate the incompetence level now exceeds 20 percent. One divemaster interviewed claimed he made three scuba rescues in one day!

This situation is causing a ripple effect which will eventually touch all of us. The signals are already evident. Wary divemasters are growing more defensive and have begun to conduct highly structured dives. Guests are kept in a tight group and herded along the reef like cattle. No one is allowed to stray or to stop for even a photo. Many dive operators have instituted their own maximum depth limit of 100 feet on wall dives. They claim that guests often ignore their depth gauges and go well beyond their safe limits. Visiting divers are often subjected to repetitious, boring lectures on dive safety because of the inability of new divers to conduct themselves properly.

Since the divemasters cannot distinguish the good divers from the incompetents, everyone is treated the same. Dives are designed for the weakest diver in the group and the rules apply to all. There is no attempt made to separate seasoned experts from the beginners and the incompetents. Good dive locations are frequently passed up because of the possible risk to the weaker divers. Experienced divers are forced to endure shallow reefs with boring bottoms because there are beginners on the same boat.

Experienced divers are just as unhappy about the situation as the dive operators. They are losing their personal rights to dive where they want and how they want because of ill prepared neophytes. The original intent of the C-card was to serve as proof of adequate diver training, training that should fully prepare the person for diving in open water. The reality of the situation is that too many people are coming out of basic scuba courses half trained. Yet the C-card allows these people onboard dive boats and dive trips despite their training deficiencies.

Is the system coming apart at the seams? No, but there are problems. Scuba class graduates may not be as well trained as their instructors think they are. Perhaps it is time for this country's instructor associations to get together with the Caribbean resort operators and discuss the shortcomings of current training programs. The operators in the Caribbean are the ones who get to see the end product of this nation's basic scuba certification programs. ❧



Seaquest just made the two-handed adjustment of conventional weightbelts a thing of the past, with its new positive-release weightbelt.

It's in a class by itself.

Once you try it, you'll wonder how in the world you ever got along without it. To release the belt, merely pull the release grip forward and it's off.

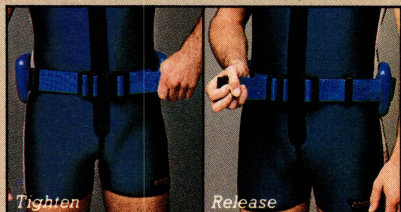
To loosen it, simply lift up on the loosening lever.

And to tighten, just give the webbing extension a tug.

You'll also find our distinctive

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Our new weightbelt comes in four colors, and the buckle assembly



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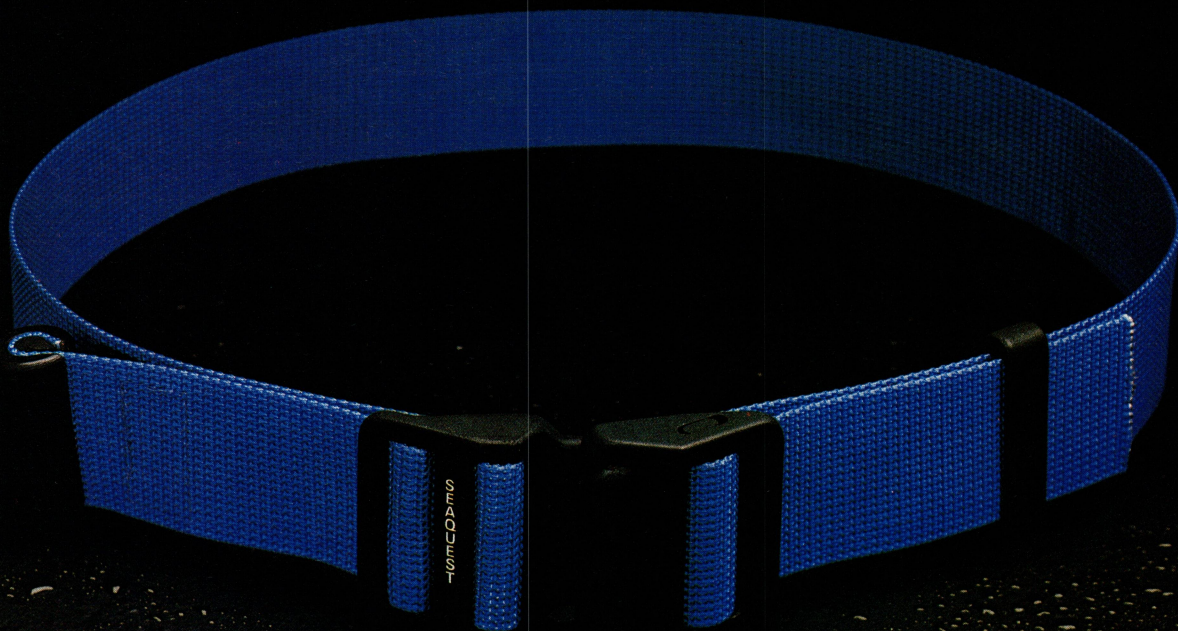
Be sure to ask for a demonstration of the weightbelt that effortlessly adjusts with only one hand. Seaquest's positive-release weightbelt. It's the only one of its kind. (Patent Pending)

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**TIGHTENS, LOOSENS,
RELEASES WITH ONE HAND.**

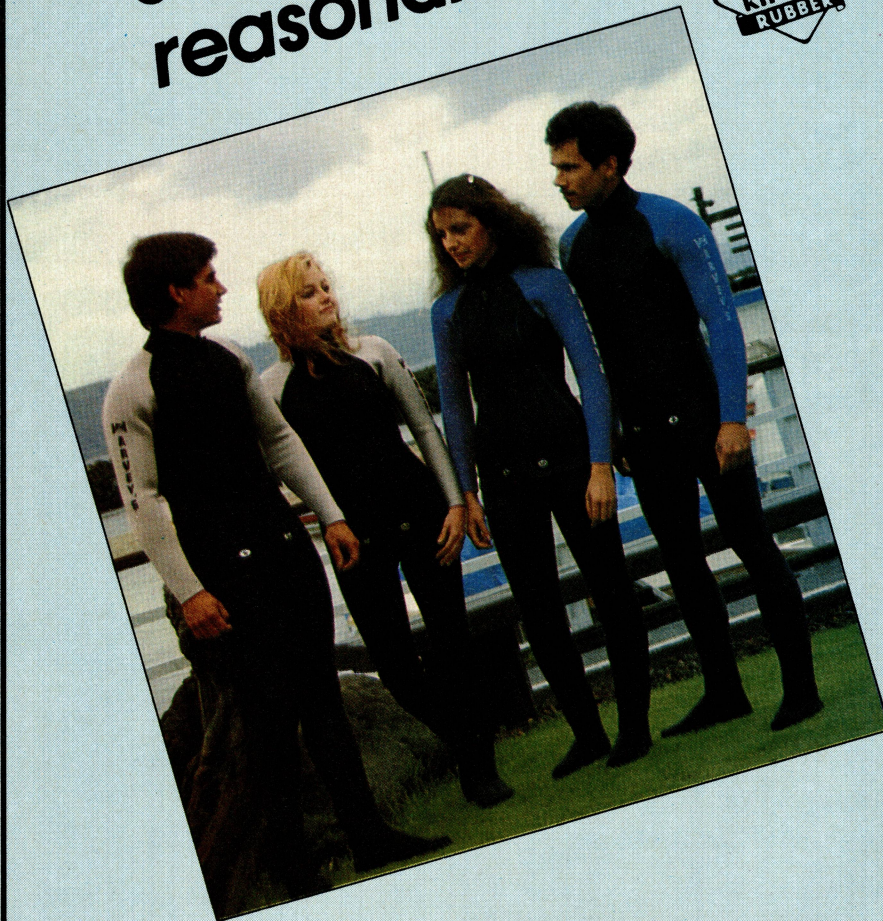


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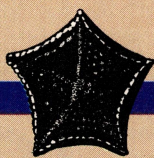


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A unique second stage design that incorporates a patented bypass tube. With this ingenious device our regulator performs

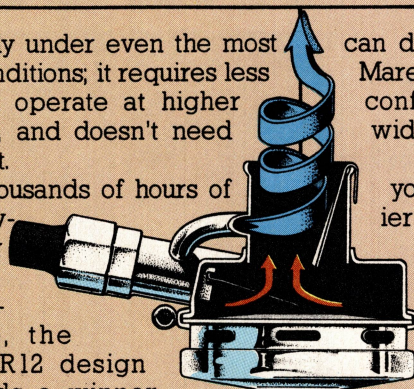
consistently under even the most severe conditions; it requires less energy to operate at higher flow rates, and doesn't need adjustment.

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Put our regulator to the test yourself. You'll breathe easier with the Mares MR12-III.

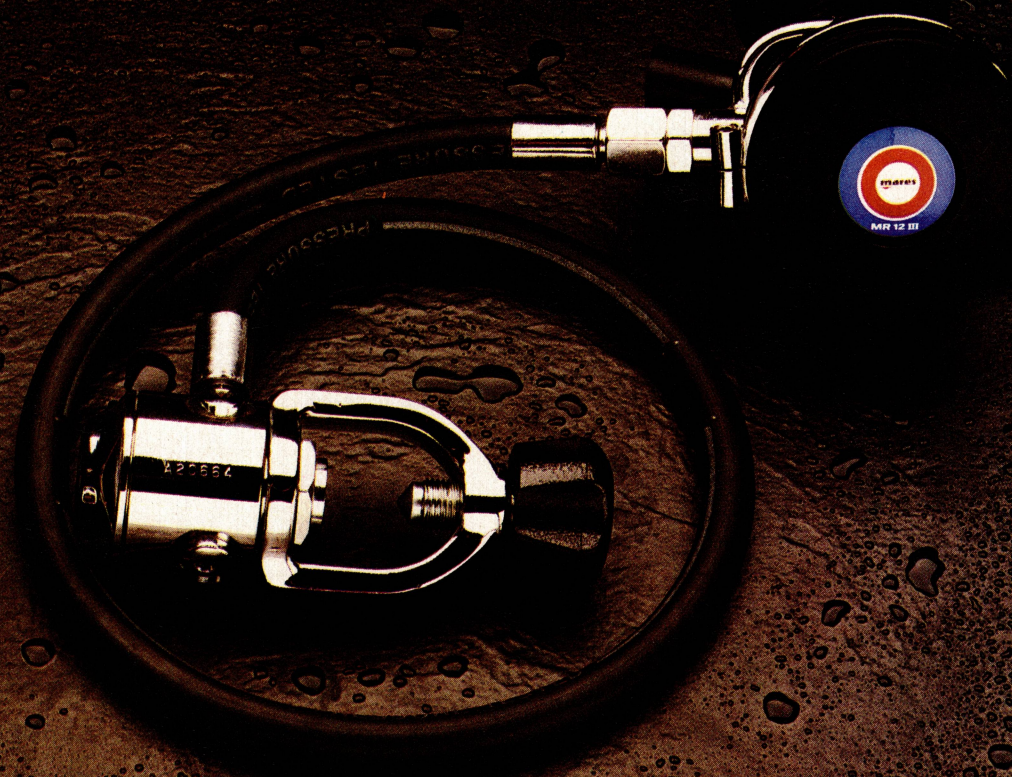
After all, who wants to work harder than they have to?

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THE COMPETITION'S STILL TRYING TO CATCH UP.



(THE EASY BREATHING MR12-III)

Boat Diving Etiquette

photos/Bonnie J. Cardone

BY BONNIE J. CARDONE

When the skipper picks up the intercom and announces, "All divers to the stern for roll call," are you confused as to whether that means the square end or the pointy end of the boat? If so, this article was written for you. On the other hand, if you're an old salt, read on—even you may learn something!

If you know nothing about boats, don't feel bad, you are not alone. You could dive inland or ocean waters for years without ever setting foot upon a boat. When you do, however, you will be a lot more comfortable if you know what to expect and have a basic knowledge of boat terminology. This article was formulated not only to help those who are new to boat diving but also to remind the more experienced diver of some basic rules of boat diving etiquette.

UNIVERSAL DON'T'S

No matter what the size of the boat from which you are diving there are certain things you just don't do. Most of these involve using your common sense and being considerate of your fellow divers, as well as being respectful of a very expensive piece of dive equipment—the boat. Think before you act and avoid doing those things that are going to irritate, damage or injure. An example of this is a story that has been circulating in Southern California for years. It concerns an instructor who decided to have his students practice dropping their weightbelts—while they were all standing on the deck of a charter boat. You can imagine how pleased the skipper was when he heard the incredible thud of ten weightbelts simultaneously hitting the deck of his boat.

Now, imagine the embarrassment of the instructor when the skipper (not a mild mannered man) told him his opinion of this act. Also, imagine how welcome the instructor was on that boat—or any other charter boat—with his future classes. If the instructor had given one second of thought to this very inconsiderate act, he wouldn't have done it. I venture to say he never did again.

Weightbelts are very destructive to boats and people. They scratch and chip paint, dent wood and metal, and can cause painful injuries when they come in unexpected contact with human flesh. Don't put your weightbelt on until you are ready to go into the water and don't wear it between dives. Don't wear it into the galley or other close quarters. Don't drop it when you're taking it off, lower it gently

to the deck. In between dives, put it out of the way so people aren't stumbling over it.

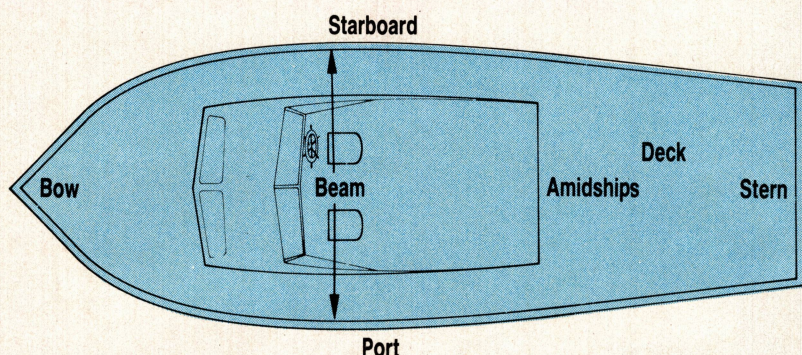
Tanks are worse than weightbelts when it comes to potential for damage. Unlike weightbelts, however, tanks are also unstable. If upright and unsecured, they can tip over with just the slightest movement of the boat. And, without a backpack, they roll. Never leave your tank unattended or unsecured even on the calmest day. An unexpected swell or the wake of a passing boat can be disastrous. Also, your tank can become a lethal weapon if it connects with someone's

head while you are putting it on or walking about the boat. Don't put your tank on by lifting it over your head on a crowded boat and don't walk around with it on before or after your dive.

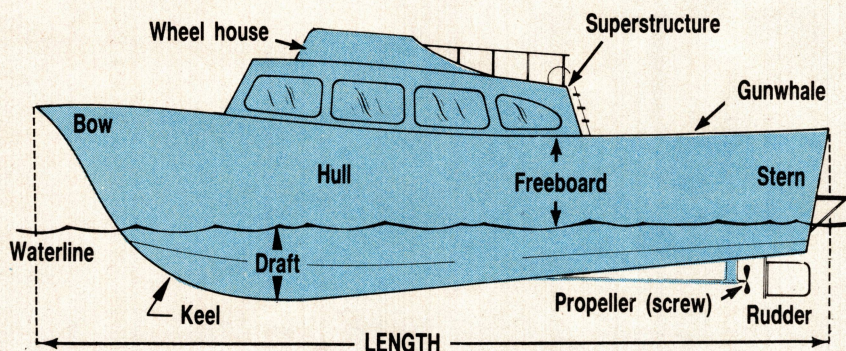
Spearguns and polespears are potential topside weapons if you don't disarm them before you board the boat. Don't cock your gun until you are underwater, and, uncock it before you ascend. (An old tennis ball with a hole cut in it makes a good tip protector.) All charter boats have special places to store guns and polespears. These are usually boxes at the stern. Store your weapon in this box

The diagrams below, taken from the *Jeppesen Sport Diver Manual, Advanced Open Water Activities, Volume II*, should give you a basic orientation to dive boats.

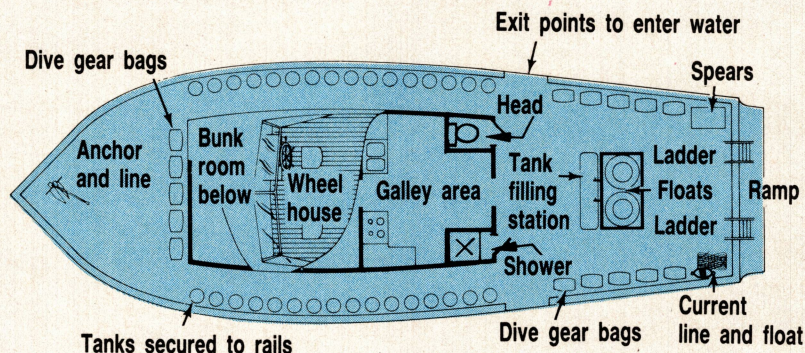
diagrams/courtesy Jeppesen Sanderson, Inc.



Top View of Boat



Side View of Boat



Top View of Dive Boat

NAUTICAL TERMS

Aft.....	Toward the stern
Bow.....	Front of the boat
Bulkhead.....	Wall
Deck.....	Floor
Fill station.....	Where tanks are filled
Forward.....	Toward the bow
Galley.....	Kitchen
Gate.....	Water entry area
Head.....	Toilet
Lee.....	Facing away from the wind
Overhead.....	Ceiling
Port.....	Left
Skipper.....	Captain
Starboard.....	Right
Stern.....	Rear of the boat
Wheelhouse.....	Steering area
Windward.....	Facing into the wind

This chart is intended to familiarize landlubbers with basic nautical terminology.

tip down. This prevents the rubbers on polespears from getting fouled in the tips of other polespears and injuries from the points to people removing a weapon from the box. Have your weapon handed down to you after you're in the water. Rubbers can hang up on the boat when you're jumping in. Not only is this embarrassing, it is dangerous.

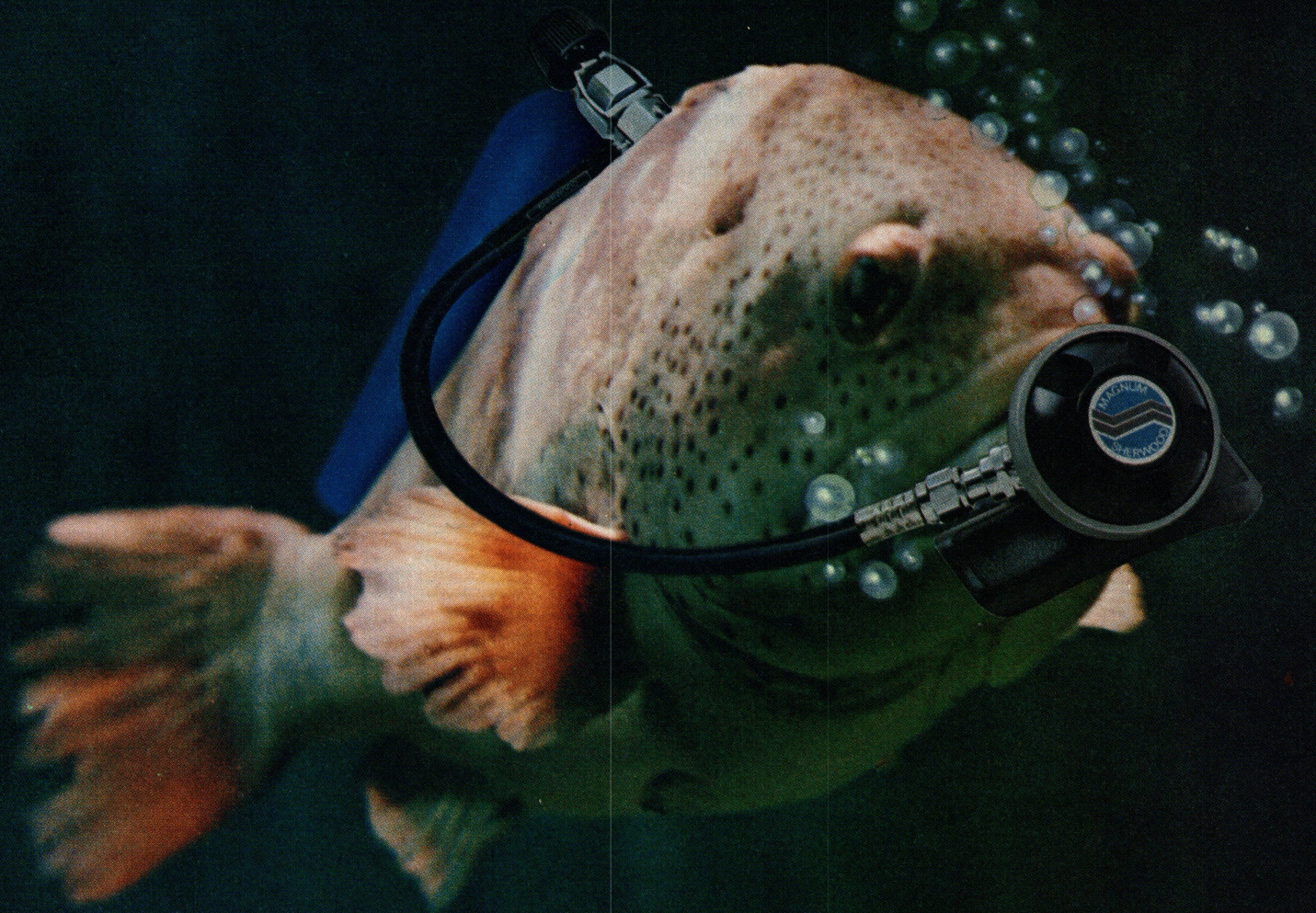
Since we're talking about weapons used to take game, let's mention a few things about the game as well. Don't dump your bag of shellfish on the deck and then walk away leaving the flotsam, jetsam and broken bits of shell on it. These can cut bare feet, are not good for the paint on the deck and can be slippery. If you spear fish, bring a bucket to keep them in and never leave your bag or stringer where the spines of the fish can come in contact with human limbs. The spines of some fish are poisonous.

Seasickness is a delicate subject. If you feel seasick, stay topside. If you must be sick feed the fish from the lee rail. Do not use the head; no one has time to clean up after you. Besides, all it takes is the smell or sound of someone being sick to trigger the malady in others.

You can always tell when a boat has a load of basic students—there will be gear scattered everywhere. Space is limited, so learn to work out of your gear bag. Never walk off leaving fins, mask, etc. lying about. I once saw a brand new mask crushed by a diver who lost his balance and sat on it. The mask was in the wrong place at the wrong time. Mark your gear so you can tell it from everyone else's.

Most charter boats do not have room below decks to store your gear. When you pack for a trip, pack two separate bags. One contains items you want to stay dry and goes with you to your bunk. The other contains such dive gear as wet-suit, BC, etc., and always remains on the

(Continued on Page 76)



An underwater expert talks about Magnum.

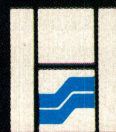
"Sure, gills are great in clear, warm water, but the Sherwood Magnum series lets you dive anywhere. Even in silted, sandy or cold water, the simple Magnum design assures you of a dependable, easy-drawing supply of air.

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PARKWAY CONTEST WINNERS

The two winners of the Put Yourself in the Parkway Picture contest are Bill Davis of Olympia, WA and Kim Greenwood of Florence, OR. Each has won an all-expense paid dive adventure, accompanied by a buddy of his or her choice, to the South Ocean Beach Resort in the Bahamas. The Parkway trip includes round trip air fare, hotel accommodations, food and all diving necessities.

Hundreds of entries were received by Parkway after the company's contest was

announced. Contestants were invited to send one photograph showing the wearing of any exposure garment made by Parkway during the last 25 years. Davis' photo featured a drysuit; Greenwood's featured a wetsuit. 

HELIX BOOKS

Helix of Chicago is offering a new list of rare and unusual books on marine life from all parts of the world. The eight page booklet contains a listing of 91 different books, including brief descriptions and prices. Many of the books contained in the listing are hard to get because they are published in foreign countries such as Africa, Tahiti and Australia.

Divers can obtain a copy of the Under-

water Books brochure free by sending a request and self-addressed, stamped envelope to: Helix, 325 West Huron Street, Chicago, Illinois 60610. 

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Danny Marquez has joined the staff of the PADI International College as the director of the retail operations and resort course. He also is the placement officer. Marquez has extensive experience in retailing. Retail stores and resorts should contact Marquez at the college for instructor requirements and gold instructor alumni should contact him for continuing placement at 1310 Rosecrans St., San Diego, CA 92106. 

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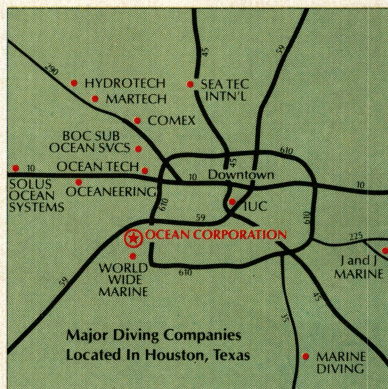
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Why Houston?

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The Ocean Corporation is located in Houston and more commercial divers are hired in Houston than in any other place in the world. Twelve diving companies are located in Houston including three of the four largest in the U.S. Many others are located in the nearby New Orleans area. The demand for divers is so great in Houston that large locally based diving companies like Ocean Systems, Hydrotech Systems, Martech International and Sea Tech International have hired many of our students for part-time work while they were attending school. Over 90% of our recent graduates went to work for these and other local diving companies when they completed our program. Houston is the place where the action is...the commercial diving, offshore construction and oil industry capital of the world.



BECAUSE

The Ocean Corporation is a commercial diving company, not just a school. Our facilities, equipment and training aids are the best, and our diving systems are as up-to-date as possible... because much of the equipment is used by our diving operations division to perform actual diving contracts in the field. Ocean Corporation has successfully completed many underwater jobs for various industrial clients over the years... including specialized underwater inspections, maintenance and repair work. For example, we did the world's first commercial underwater repair job in a nuclear power plant. And most of our divers have been graduates of our own school.

BECAUSE

The Ocean Corporation is a convenient and exciting place to go to school. Houston is one of the fastest-growing and most dynamic cities anywhere. It is a city of expansion, energy and youth (the average resident's age is in the mid-20's). Houston offers every conceivable kind of entertainment, from sports events, ultra-modern discos and open-air theater to rough-house local rodeos, chili cook-offs and the new Texas-size



country-western dance clubs. Reasonably priced adult and singles apartments are readily available within walking distance of the school, and fast-food to luxury restaurants are nearby. The semi-tropical climate is wonderful, the sport diving is great and the folks are friendly.

BECAUSE

The Ocean Corporation management and instructor staff have long-term experience in the international offshore oilfield diving business. Retired ex-military divers and sport scuba divers don't run the school...commercial divers do. For example, the President of The Ocean Corporation, Larry



Cushman, was Vice President and Europe/Africa Area Manager for Ocean Systems, Inc. for three years...with responsibility for all North Sea diving and underwater construction operations. He also worked six years as a manager for Oceaneering International, Inc., another of the world's largest commercial diving contractors. Ocean Corporation managers and instructors know today's diving business...first-hand, from recent experience.



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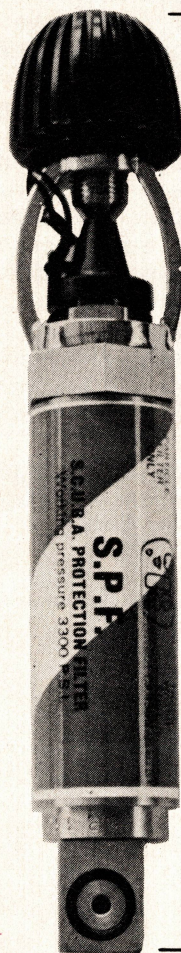
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Rx FOR DIVERS BY FRED BOVE, M.D., Ph.D.

Part of this month's column was contributed by Dr. Joseph Farmer, an ENT (ear, nose and throat) and dive medicine specialist from Duke University. Doctor Farmer has extensive experience with ear problems in diving and provides us with some valuable information on this subject.—Fred Bove, M.D.



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This month it is time to catch up on correspondence. Many of you have written, and I hope the answers you received have helped solve your diving related medical problems. There have been numerous questions about ear problems. Doctor Davis discussed ear care in a previous article, and he mentioned that ear problems are common in this sport. Every diver will, some time or other, have an ear problem. The drawing of the ear structure included in this article will help you to understand the various ear problems which occur with diving.

Question: Can I dive with a perforated eardrum?

You should not dive with a perforated eardrum. Sometimes cold water entering the middle ear through a perforated eardrum will upset your balance mechanism, located next to the middle ear, and cause sudden vertigo, dizziness, or even vomiting. None of these things are conducive to safe diving. Also, when there is a hole in your eardrum, water can enter the middle ear, cause an infection, and eventually with repeated damage, result in hearing problems. However, most eardrum perforations caused by diving are not permanent. First, you must let the perforation close and heal before resuming diving. If you rupture an eardrum while diving, you should see a physician, get treatment to prevent ear infection, and wait for healing to occur. You may be unable to dive for three to four weeks, but with proper care, the drum will heal. After

an examination by your doctor, you should be able to dive again.

Several divers wrote about chronic eardrum perforations—ones that will not heal. I discussed this problem with Doctor Farmer. He says that chronic eardrum perforations usually occur when there is poor eustachian tube function. Unless the tube functions adequately, the eardrum perforation will not likely heal. Frequently, poor eustachian tube function is related to chronic nasal or sinus disease. Individuals who have a permanent eardrum perforation should seek consultation with an ENT specialist before undertaking diving. They should not dive until any identifiable causes of poor eustachian tube function have been adequately treated and the eardrum perforation has been repaired. All divers need to be aware that non-diving related ear disease indicates the presence of poor eustachian tube function in the absence of significant atmospheric pressure changes. Such individuals are definitely more likely to exhibit inadequate eustachian tube function and middle or possible inner ear barotrauma when exposed to the significant atmospheric changes encountered in diving.

If you have perforated an eardrum while diving, you should promptly seek medical help to be sure it heals properly. If the drum does not heal, you should see an ENT specialist. All divers should take care to properly clear their ears during descent. Eardrum perforations while diving, owing to inadequate middle ear pressure equilibration during descent are preventable. Such occurrences indicate an unsafe diving technique, specifically, a descent rate that is too fast with inadequate attention to middle ear clearing.

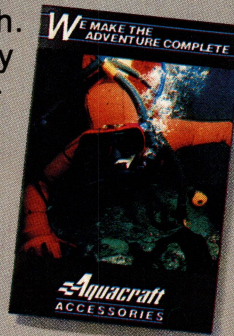
Question: A week after diving I noticed some difficulty with hearing in one ear. The ear feels full, and I notice an occasional hissing or buzzing sound in that ear. Is this related to diving?

Probably; hissing or buzzing sounds after an ear squeeze can represent middle ear or inner ear injury. If these sounds are not accompanied by other ear symptoms suggesting inner ear injury, such as vertigo or hearing loss and are not loud and are intermittent, these symptoms are probably related to middle ear squeeze during diving. With such squeezes, swelling of the lining of the middle ear and eustachian tube plus fluid accumulation in the middle ear occur. Often the fluid will not clear until the swelling has subsided and normal eustachian tube function returns. This frequently requires at least five to six days and occasionally one to two weeks. The presence of other factors such as nasal allergy or irritation from smoking can prolong the recovery period. With middle ear fluid accumulation, sound is not transmitted properly to the inner ear. The inner ear tends to respond to noises which are present in the head and are usually masked by outside sounds. Thus, an occasional hiss or buzzing noise can be heard. Ear squeeze



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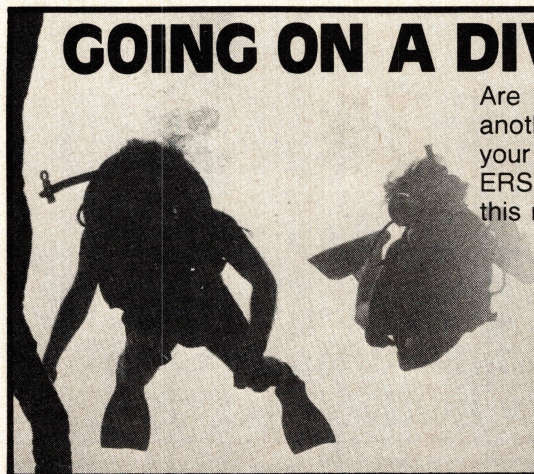
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GOING ON A DIVE TRIP?

Are you planning a dive trip to another state or a spot outside your local area? Check the DIVERS DIRECTORY in the back of this magazine for information on:

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Rx FOR DIVERS

should be prevented by adequately clearing the ears every one to two feet during descent. Once a squeeze is present, medical attention should be sought. Most middle ear squeezes can be successfully treated with medication. You should not return to diving until all symptoms and signs have cleared. If you have frequent problems with ear clearing during diving, or if the symptoms and signs of a squeeze do not clear within ten days, you should seek consultation with an ENT specialist. If other symptoms, such as hearing loss, vertigo or dizziness, or loud roaring or ringing noises are present, you should seek prompt consultation with an ENT specialist.

Question: Following my last dive, I developed a buzzing sound in one ear. I did not have an ear squeeze, and my doctor found no abnormality when he examined my ears. What can I do to get rid of the buzzing?

You may have suffered a diving inner ear injury known as inner ear barotrauma. This problem is infrequently seen, but does occur and is more difficult to deal with than a simple middle ear squeeze. Inner ear barotrauma during sport diving has been related to inadequate middle ear clearing with the development of a negative middle ear pressure during descent. This can lead to rupture of membranes within the inner ear or of the round or oval windows, membranes which normally seal the inner ear fluid from the middle ear. With such rupture, fluid leaks from the inner ear into the middle ear. Such is more likely to occur if the diver strains or tries to do a forceful valsalva maneuver in order to clear the ear while at depth. Round or oval window ruptures are accompanied by nausea, vomiting, vertigo, hearing loss and/or noise in the ear. One or all of these symptoms may be present and are frequently noted during descent or after surfacing from relatively shallow dives not involving staged decompression. Vertigo with possible nausea and vomiting can be life-threatening while at depth. Occasionally, the diver may not notice the ear squeeze during the dive. If an ear examination is delayed for five to seven days, signs of middle ear barotrauma may have subsided with the window rupture persisting. If a window rupture is suspected, removal of the diver from the water, bed rest with head elevation, and prompt ENT consultation should be sought. Surgery may be needed to repair the rupture.

Another type of diving inner ear injury is inner ear decompression sickness. This is more commonly seen during deep, mixed gas diving, but can be noted

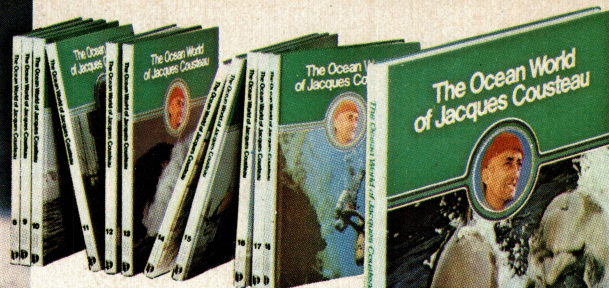
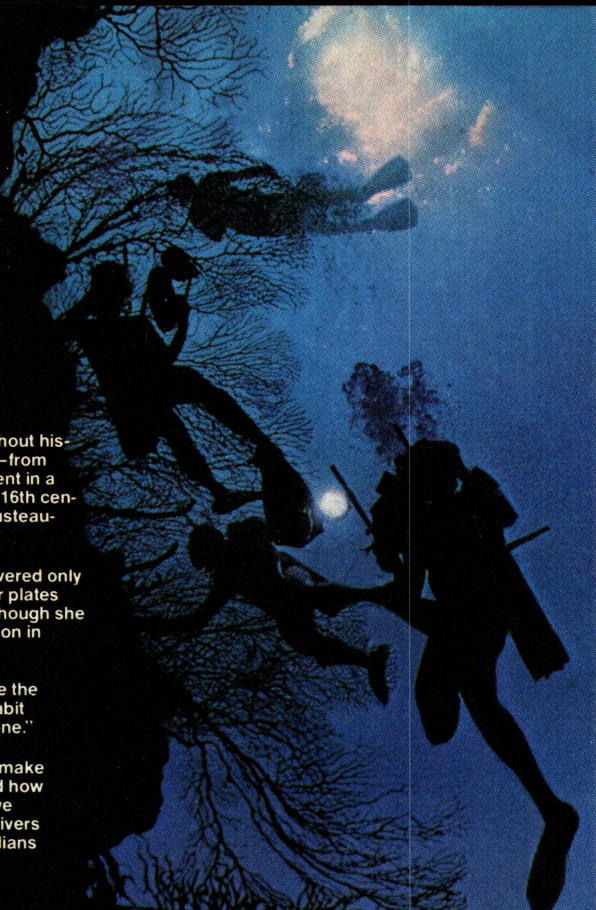
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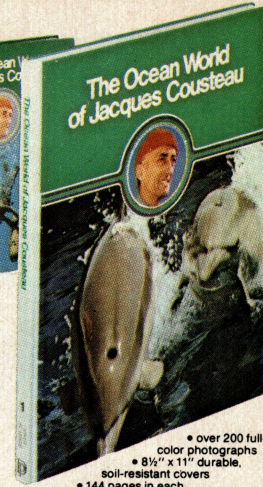
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Diver's Calendar

January 1 Twenty-first Workshop of the Cave Diving Section of the National Speleological Society. Branford High School, Branford, Florida. (Contact: Shannon Heinerth, 6494-A, U.S. 19 N., Hudson, Florida 33568)

January 1 Eighteenth Annual Frozen Fin Dive, sponsored by South Eastern Connecticut Skin Divers (SE-CONN). New London Town Beach, Pequot Avenue, New London, CT. Registration 10:00 am, dive at 12:00 noon. Prizes. (Contact: Brian Johnson, 27 West Arch Street, Pawcatuck, Connecticut 06379)

January 20-23 Diving Equipment Manufacturers Association (DEMA) show. Las Vegas Convention Center. Open to trade only. (Contact: Bob Gray, telephone (714) 730-0650)

January 27 Northern Kentucky Diving Center's Evening of Underwater Films, aboard the Mike Fink docked at Covington, KY. Advance tickets only. (Contact: Jeffery Parrish, NKDC, 225B Main St., Florence, KY 41042)

February 1 Deadline for entering the 1982 Underwater Society of America Photography Competition. Nine categories of slides, prints, movies and video. Unlimited entries in each category. (Contact: Paula M. Novotny, Director of Photography, 9702 E. 12th Street, Indianapolis, Indiana 46229)

February 1 Deadline for entering the Association of Canadian Underwater Council's Underwater Photography Contest. Eight categories of entry. Prizes awarded to winners. (Contact: Jim Kozmik, ACUC Underwater Photography Chairman, P.O. Box 242, Markham, Ontario L3P 3J7)

February 4-6 Twenty-fourth Annual Ohio Council of Skin & Scuba Diving Banquet Ball at Wapakoneta, Ohio Holiday Inn. Distinguished speakers. (Contact: Art and Twink Miller, RR1, Kolter Rd., Spencerville, Ohio 45887; telephone (419) 647-4835)

February 11-12 Institute of Diving's Sixth Annual Meeting and Banquet, International Diving Museum, Panama City, FL. (Contact: Tom James, Executive Secretary, Institute of Diving, P.O. Box 876, Panama City, Florida 32401)

February 12 Ninth Annual AID Dive at Elora Quarry, Ontario, Canada. Proceeds will be donated to the local Big Sisters building fund. (Contact: Jeff Buckingham, 31 Hickson Dr., Kitchener, Ontario N2B 2H5)

February 26 Seventh Annual Diver's Showcase, Lansing Michigan. Sponsored by the Capitol City Dive Club at the Lansing Civic Center. (Contact: CCDC, P.O. Box 1055, East Lansing, MI 48823)

WANT TO SCUBA?



Before you try, take lessons from an experienced professional instructor and receive your official certification card. For current classes and scuba instructors available in your area, check the DIVERS DIRECTORY in the back of this magazine.

skindiver
magazine

The ForceFin. It works a little different, but it works a lot better.



The ForceFin is a totally new concept in swim-fin design and chemistry. It has been engineered to generate the greatest kicking power with the least effort.

And, since it is so revolutionary, the ForceFin does not function like any other fin. When using other swim-fins, the downward kick always provides the power to the kick, utilizing the stronger muscle groups, while the upward kick supplies the least power and the most fatigue. Additionally, during the upward kick, the arch of the foot, the toes and ankle frequently get strained or develop cramping. The ForceFin, therefore, is designed to offer substantial resistance on the down kick and none on the up kick. You are compensated for this loss of upward power with a kick turnover that is a little faster and a lot less fatiguing. Since the best way to use this fin is to relax ankle and arch, toe cramping is virtually eliminated.

Made of polyurethane, the ForceFin is sun, saltwater and ozone resistant. And it holds its molded shape permanently. Available in six sizes with an adjustable strap, you are assured of a perfect fit, with or without booties.

The ForceFin is a surprising experience for those accustomed to heavier, stiff-bladed fins. It's an odd sensation to get so much power from your kick, without feeling the customary strain. But it's a sensation that's easy to get used to.



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Film Festivals 'n Symposiums

UPS FILM FESTIVAL

The Underwater Photographic Society will celebrate its 25th anniversary with its 20th Annual Film Festival, to be held on Saturday, February 19, at El Camino College, Torrance, CA. With a theme of an historical look at underwater photography, the show will start at 7:30 pm. Admission is \$5. For information call Marilyn Hodge, (213) 839-1024. 🌊

GREAT LAKES SHIPWRECK FESTIVAL

The Sixth Annual Great Lakes Shipwreck Festival, presented by the Ford Seahorses Scuba Diving Club, will be held February 19 at the Ford Motor Company World Headquarters in Dearborn, MI. The program will consist of displays, exhibits, slide shows, and films.

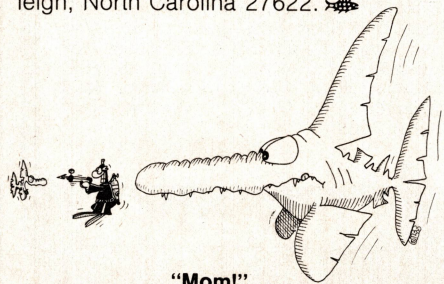
For program information contact: Walt Boelster, 14135 Doris, Livonia, MI 48154. For tickets contact: Maria Cramer, 1841 N. Denwood, Dearborn, MI 48128. 🌊

SEAS 83

The Seas 83 (Southeastern Atlantic States) Underwater Conference and Film Festival will be held February 24 through 26, 1983. Activities will begin on Friday with a reception. On Saturday, there will be a series of workshops offered which will explore different subjects relevant to man and his underwater environment. Jack McKenney will host a workshop on underwater photography as well as present some of his films at the film festival Saturday evening. Other activities will include exhibit booths and an underwater photo contest.

The photo contest will consist of two categories: open, 35 mm and 110 mm slides; and 110 mm slides only. There will be a Nikonos IV camera, Dacor Seachute buoyancy compensator, and an Ikelite Mini C-Lite awarded in the open category. A Sea and Sea 110 camera, U.S. Divers regulator, and an Ikelite Mini C-Lite will be awarded in the 110 mm category.

For information about registration for the conference or entry in the underwater photo contest, write to: SEAS 83 Underwater Film Festival, P.O. Box 31186, Raleigh, North Carolina 27622. 🌊



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The first thing you need is a good wet suit. And fortunately there's no secret to finding one. If you want a good wet suit ask for Sea Suits.

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It was a cold Sunday in January, a day the temperature never reached 15°F. A small group of divers from the Midland area converged on Littlefield Lake in north central Michigan to dive.

"We do the diving to take advantage of the season," said Keith Kuhlman, a PADI certified ice diving instructor. "There has been a lot of interest expressed in ice diving in this area so we offered a course to teach people how to do it safely. There is a lot more to it than cutting a hole in the ice and jumping in.

"We start with experienced divers. They must have at least ten hours underwater," Keith continued. "Even then we won't allow just anyone to take the course. It takes a certain type of mental attitude, a lot of self-confidence."

The course involves six hours of classroom training and three dives. In the classroom the divers learn the stress effects of the cold water, equipment maintenance, site preparation and, of course, how to find the hole underwater.

The wind chill was around -20°F when the group arrived at the site which Keith had selected a few days earlier. A circle 150 feet in diameter was made with a snow blower. A second circle 75 feet in diameter was then made, along with paths leading from the hole in the center to the outside circle. Under the ice this would look like a large wheel and make finding the hole easier.

ICE DIVING

BY DAVID A. SOMMERS

Chain saws cut a triangular hole in the ice, five feet on a side. A triangle is used so that three divers can enter the water at once and rest comfortably.

While four divers were suiting up, the safety lines were checked. Three of the four would go down roped together. They were also firmly attached to a 75 foot rope handled by a surface tender. This rope was securely fastened to a stake driven into the ice.

The fourth to dress was the safety diver. He had all of his equipment on and was ready to go just in case the others had a problem. If the three were to lose their safety rope and couldn't find the hole by using the large circles on the ice, they would swim up to the ice overhead and wait. The tender would notice the slack line, and the safety diver would enter the water. The safety diver would swim to the end of his 150 foot rope and swim a full circle, with the ice just over-

head. Lost divers would then pick up his rope and follow it back to the hole.

The safety lines were attached. A final equipment check was made and the three divers disappeared under the ice. The surface group huddled from the wind while the three experienced the thrill of being under the ice. In this strange, dark world one can do many unusual things, like walk upside down on the smooth underside of the ice. Bubbles that escape from regulators form silver pockets that are poked into strange shapes.

The 15 minutes passed quickly for the three and all too soon they felt the tender tug on the safety rope. The signal meant their time was up.

Two chilled divers hurried from the water to the warmed vans beside the hole. They were anxious to get out of their wetsuits and backpacks before they froze. The third diver was in a drysuit. He took off his tank and weights and waited for the others to change.

The snow was blowing horizontally across the frozen lake surface as the last group of divers emerged from it. They hurried to change as the first group of divers dumped the cut ice into the hole.

Over hot chocolate and hamburgers, late in the afternoon, the divers talked about their experiences. And, they were already talking about the next weekend, planning a dive on a wreck in Charlevoix, "Just to do something different." 

ASSOCIATE OF APPLIED SCIENCE DEGREE NOW OFFERED FOR NEW, INTENSIVE TRAINING PROGRAM AT COMMERCIAL DIVING CENTER, LOS ANGELES.

COMMERCIAL DIVING CENTER OF LOS ANGELES announces the recent accreditation of their diver training program. The Center now offers an ASSOCIATE OF APPLIED SCIENCE DEGREE to all students who successfully complete their programs. This Associate of Applied Science (A.S.) Degree program has been authorized by the State of California Department of Education, the same agency that authorizes all associate degree programs for junior and community colleges throughout the state. Accreditation is a system for recognizing institutions with the highest levels of quality, integrity and performance in the areas they serve.

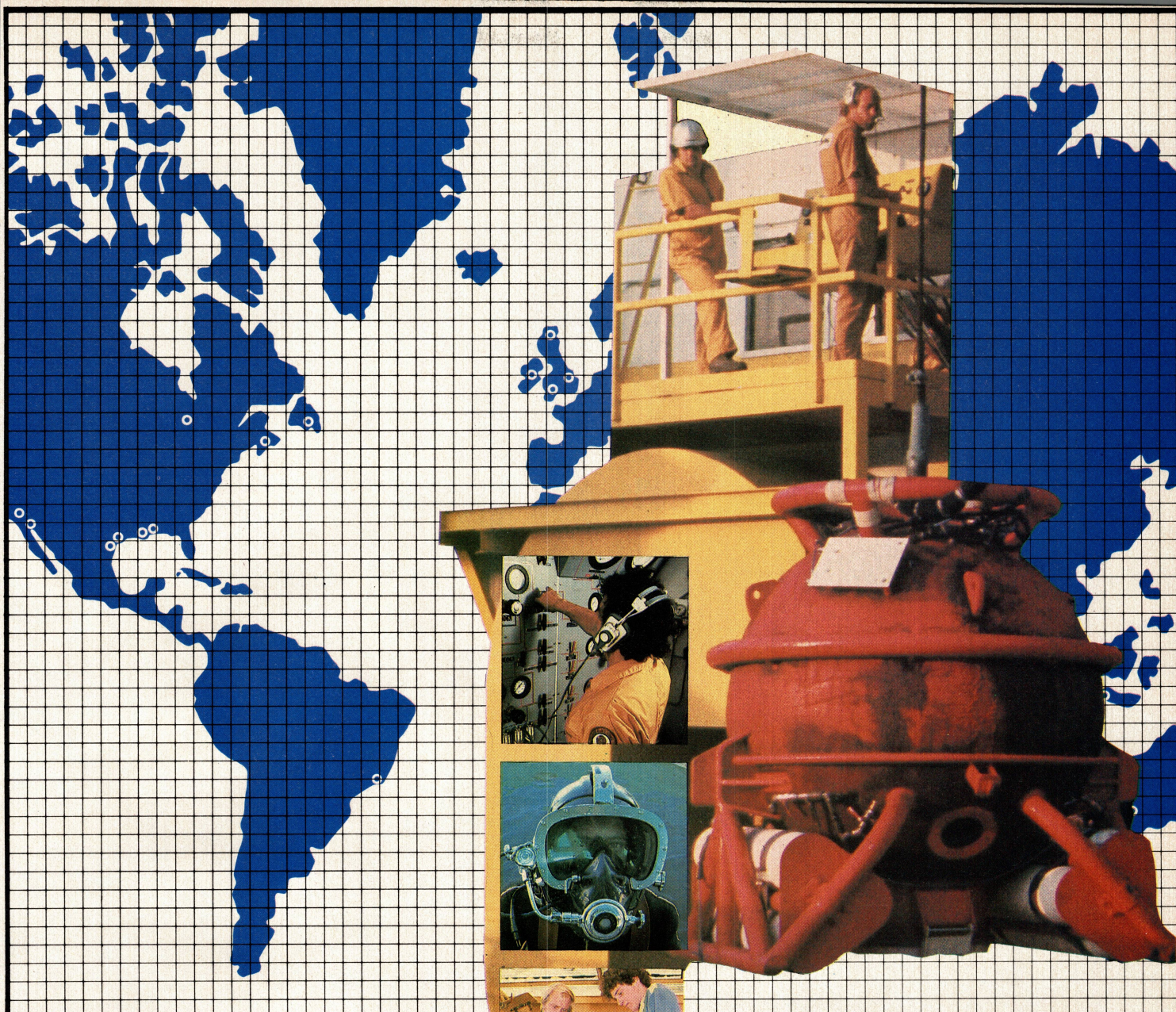
The student who enrolls in the Associate of Applied Science Degree diver training program at COMMERCIAL DIVING CENTER will find an intensive, concentrated course of study. In six months, the student can complete the same program that takes two years in most other colleges. This enables the student to achieve career goals sooner, while ensuring that he meets the highest requirements for classroom hours and hands-on experience.

An Associate of Applied Science Degree can open many doors for the qualified diver with governments and companies around the world. The experienced, highly skilled diver is accorded an extra measure of respect in many parts of the world when he can add a college degree to his list of accomplishments.

The increasingly technical and diverse demands of offshore industry

require diver training that is constantly upgraded and revised. Commercial Diving Center meets these needs by routinely refining and amplifying the diver training program for the Associate of Applied Science Degree. An A.S. Degree from Commercial Diving Center will signify to anyone in the industry that the graduating diver is prepared to meet the challenges of rapidly expanding technology, ever deeper dives, and increasingly sophisticated procedures.

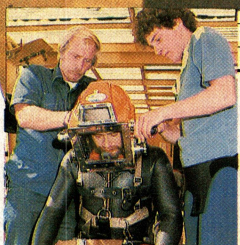
For further information about this exciting new degree program, contact Herb Richert, Director of Administration, Telephone: (213) 834-2501.



THE FEW. THE PROUD. THE CDC'S.

COMMERCIAL DIVING CENTER of Los Angeles put you in the picture. As great as the money is, it's the travel opportunities, the challenges, and casual lifestyle that attracts the professional divers that work for Oceaneering International. CDC graduates have travel opportunities that most people only see in daydreams. Equally as important as money and travel are the challenging jobs. CDC is owned by the world's largest diving contractor, Oceaneering International, Inc., employing more than 1300 men and women, 800 of whom are commercial divers and topside support personnel. To help Oceaneering ensure the excellence they expect from their people, they operate CDC. With 31 offices in 17 foreign countries and United States, CDC's telex communications network instantly links the college with all operations worldwide for employment placement.

Commercial Diving Center is a College accredited by the Western Association of Schools and Colleges which has granted it the recognition and privileges accorded to



junior and community colleges for degree granting purposes and recognized by the U.S. Department of Education. V.A., State, and Federal loans and grants are available.

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Send for our free full-color brochure, and let COMMERCIAL DIVING CENTER launch you on your career adventure.

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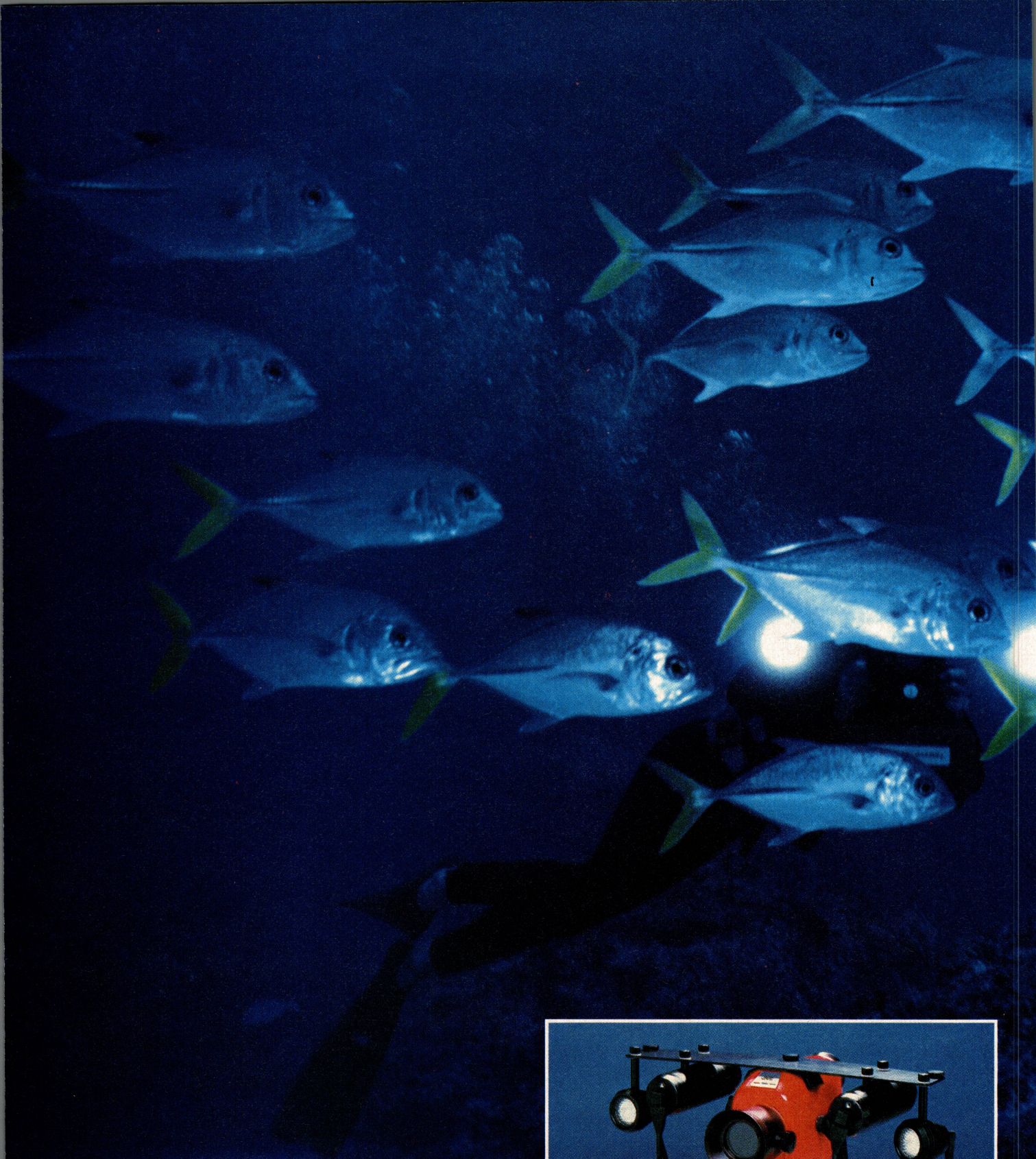
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The videomarine system combines the JVC GX88 video camera and the JVC HR2200 video recorder in joined U/W housings which require no cables to the surface.



photo/Dick Clarke

photo/courtesy Oceanoptics

VIDEOMARINE

Oceanoptics Develops a Self-Contained U/W Television System BY DICK CLARKE AND WULF H. KOEHLER



The progress of video technique has been enormous. More than five percent of the families who have a color TV set also have a video recorder to record TV movies and programs. A lot of these people also make their own movies—even underwater—since professionally made housings are available.

Two years ago, Oceanoptics Ltd., a little company in West Germany with a team of engineers and divers, finished the first two prototypes of an underwater housing for the JVC GX88 video camera. A leading video and hi-fi company, JVC presented the new development at Photokina '80 in Germany along with a movie taken in Freeport, Grand Bahamas at the UNEXSO club. During that time (1980) the big disadvantage of the system was the umbilical cord between the VCR (recorder), topside in the boat and the camera and diver down below. The radius of activity was limited to the cable length of 100 feet.

Today JVC and Oceanoptics offer the compact videomarine system with a portable recorder built in—a nice alternative to the Super-8 movie camera for underwater use.

"What a big red monster," I said, talking to myself, when I saw my good old friend Wulf from Germany. He stepped into the deep tank of the Underwater Explorers Society club to check his U/W camera. Really, a little bit too big for a Super-8 movie camera housing with lights, I thought. But later, when I listened to him explaining the system in front of some

divers and members of the club I was surprised. It was not a movie camera!

He had designed and manufactured the first underwater video camera housing, the videomarine system, as he calls it—compact and self-supplied; with camera, video recorder (VCR), batteries and U/W lights.

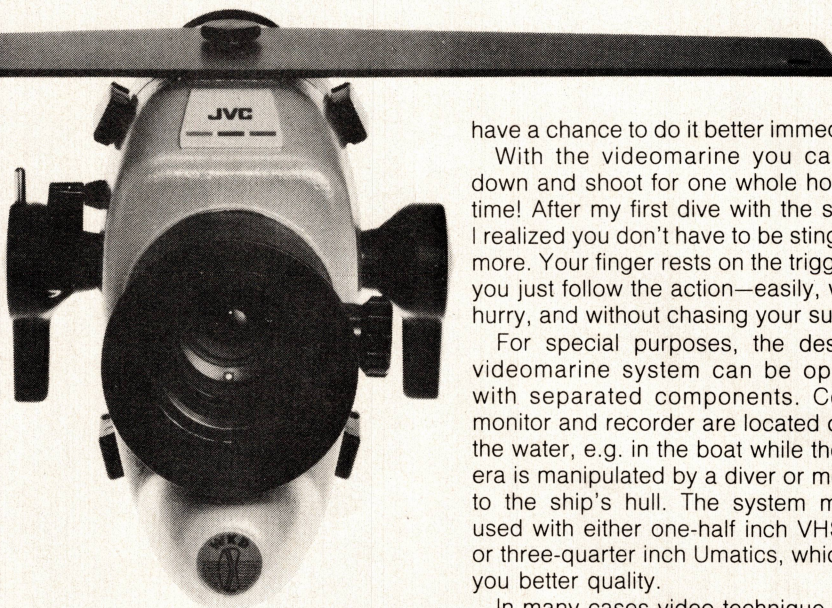
First of all, there is the video camera (JVC GX88/PAL) and the specially de-

signed U/W housing. The focusing knob

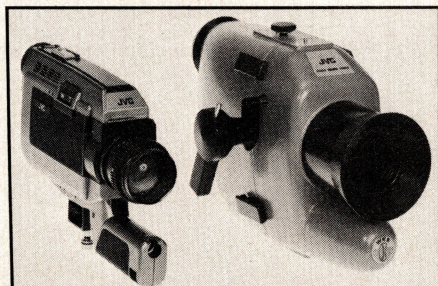
is at the left side of the front port, the power zoom is built into the right handle and manipulated by the right thumb, the on/off switch is a little trigger, operated by the right forefinger. Through a two inch window at the rear you see the image in the electronic viewfinder, a kind of a little black/white TV. Below the camera housing is the recorder housing, on a snap-lock tray. Both housings are aluminium die cast, pressure tested down to

to convert 3200°K to daylight 5200°K. Powerpacks can be changed underwater, so you can have long burn times without the need to have huge movie lights. The video cameras need less light than the film in a movie camera to give nice colors and good contrast. To start the chemical process on the film, a certain amount of light must be available, while the electronic signal of a videotube

have a chance to do it better immediately. With the videomarine you can stay down and shoot for one whole hour at a time! After my first dive with the system, I realized you don't have to be stingy anymore. Your finger rests on the trigger and you just follow the action—easily, without hurry, and without chasing your subjects. For special purposes, the described videomarine system can be operated with separated components. Control-monitor and recorder are located outside the water, e.g. in the boat while the camera is manipulated by a diver or mounted to the ship's hull. The system may be used with either one-half inch VHS units or three-quarter inch Umatics, which give you better quality. In many cases video technique will replace Super-8 film. Units will get smaller and lighter in the future. If you want to be avant garde among U/W cinematographers, there is a complete field-proven system available today. It's easy to handle and exciting to work with. If you own a VCR and tapes already, cost shouldn't be a problem. >



A stabilizing wing attaches to the top of the camera housing. It helps the diver guide the system through the water and serves as mounting point for the lights.



The U/W housing follows the contours of the camera closely for a tight fit. This reduces buoyancy and bulk problems.

photos/courtesy Oceanoptics

can be amplified as many as 1000 times within the camera.

The main difference between video and the Super-8 movies is the way of recording—not on a piece of light sensitive celluloid, but on a one-half inch magnetic tape. The image and the sound are recorded on the same tape simultaneously. This technique allows you to have a finished product immediately. If you can't wait till you are home to watch your tape on your TV, just rewind the cassette in your U/W unit and play back the pictures through the camera viewfinder. Of course

Video and audio signals, as well as 12 volt DC power are transmitted through one small cable between the housings. The audio pickup works well underwater.

At the top of the whole system is the stabilizing wing which guarantees a silent glide through the water. This wing is also needed to mount the video lights. Different sets are available, either a compact version such as Oceanic's PML-100 (6v-100 w/25 min. 3200°K) or two special sets with lighthead and interchangeable powerpack (12v-100 w/30 min.) and (24v-250 w/14 min.) from Oceanoptics. For these lights blue filters are available

Editor's Note: You can obtain more information about the videomarine system by writing to: Wulf Koehler, Managing Director, Oceanoptics, Ltd., Rheinstrasse 82-88, D-6100 Darmstadt, West Germany. If you want to discuss the system personally you can telephone (direct dial from the U.S.) 011+49+6151+314746. Both Wulf and his secretary, Ruth, speak English. (Remember: Germany is five hours ahead of New York in time.)

VIDEO VERSUS SUPER-8

Camera price (incl. sound)
Cost per one hour movie
Film ready to be shown
Loss or damage of mailed film
Price for projector and screen
Price for monitor and recorder
Price for U/W housing (camera)
Price for U/W housing (recorder)
Price for set of U/W lights (250 w)
Check of mistakes
Quality of show for small groups
Quality of show for large groups

Editing work
Costs for one hour film copy
with sound track
Total Costs

VIDEO

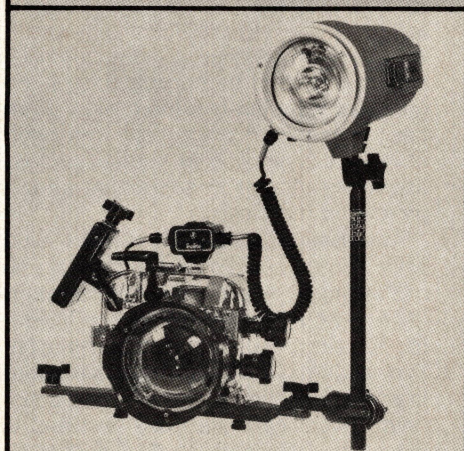
approx. \$1,050
\$15
immediately
not possible
N/A
\$1,100
\$950
\$700
\$500 to \$900
immediately
good
limited by the size of monitor
easy and fast
\$60
\$4,375 to \$4,775

SUPER-8 FILM

\$300 to \$1100
\$100
up to two weeks
possible
\$500 to \$800
N/A
\$950
N/A
\$275 to \$900
up to two weeks
better than video
better than video
time consuming
\$200
\$2,325 to \$4,050

FLASH MONITOR

IKELITE takes the guess work out of underwater flash photography. The Ikelite FLASH MONITOR is an accurate and reliable automatic exposure system for use with all Ikelite Substrobes. The FLASH MONITOR is a remote sensor module which contains a built-in slave with on/off switch, a strobe ready light, and a control for auto-exposure settings or manual. The FLASH MONITOR includes a connecting cord for easy attachment to all Substrobes which now have a removable sync cord. (Older Substrobes with non-removable sync cords can be updated to the new system — contact your local dealer or Ikelite.



SUBSTROBE 150

The Substrobe 150 now features an interchangeable sync cord. This allows addition of the FLASH MONITOR at any time for auto exposure control. Add this to the other great features:

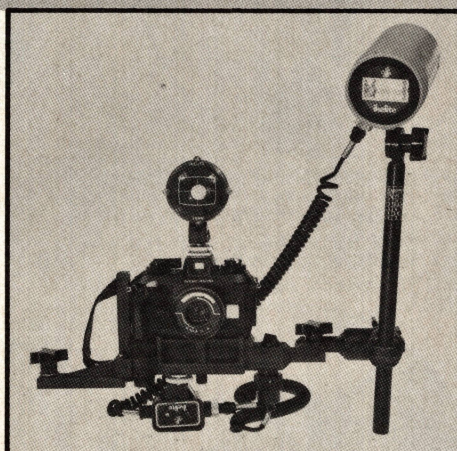
- ★ 110 degree even coverage
- ★ Honest 5 second recycle time
- ★ Built-in aiming light
- ★ Interchangeable ni-cad batteries
- ★ Up to 150 full power flashes
- ★ In Air Guide No. 60 (ASA 25)
- ★ Multi-Power settings
- ★ Built-in slave and open flash
- ★ Reasonably priced

No other underwater flash system offers the features of this Ikelite Substrobe.



UNDERWATER SYSTEMS

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SUBSTROBE M

The Substrobe M also features the new interchangeable sync cord. Now you can have automatic exposure control at any time by simply adding the FLASH MONITOR to your system. Incredible value and capability in a convenient size with all of these features.

- ★ Excellent coverage for 28mm lenses
- ★ Superb for macro photography
- ★ 300 flashes on 4 "AA" batteries (use alkaline or rechargeable)
- ★ 6 second recycle time
- ★ In Air Guide No. 45 (ASA 25)

Feature for feature, dollar for dollar, no other strobes compare to the Ikelite SUBSTROBES.

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HEART OF THE Z-LOCK™ SYSTEM IS THE UNIQUE STAINLESS BUTTON, SPRING AND THREADED RETAINER. EASILY REMOVABLE WITH A COIN OR SCREWDRIVER FOR A QUICK BLADE CHANGE OR ROUTINE MAINTENANCE.

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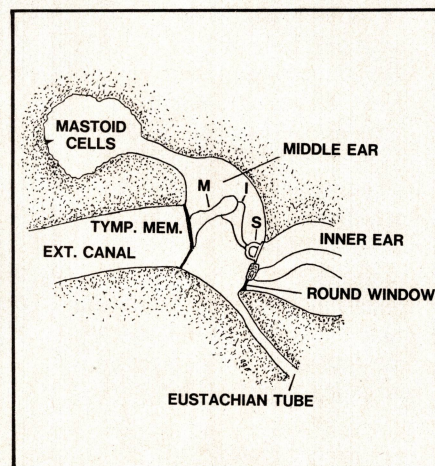
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RESEARCH, DESIGN, ENGINEERING, QUALITY

Rx FOR DIVERS

(Continued from Page 16)

during sport diving. Symptoms similar to those described above for inner ear barotrauma or round window rupture are noted. Any diver who notes the onset of such symptoms during or after decompression from dives requiring staged decompression, or from dives close to the no decompression limits, should be con-



sidered as having possible inner ear decompression sickness. A dive medicine physician should be consulted if this occurs since prompt recompression chamber treatment will often result in a return of inner ear function to normal, and will avoid permanent hearing loss and/or prolonged dizziness.

Any diver who suffers inner ear injury while diving should have a complete ENT evaluation by a specialist before returning to diving. The disappearance of vertigo does not usually mean that the balance organ in the inner ear has returned to normal function. If such an evaluation reveals significant nerve deafness and/or inner ear balance organ dysfunction, the diver should not return to diving for such ears are more likely to be injured with future diving and, injury to the opposite ear can cause significant disabilities.

CHRONOSPORT MOVE

Chronosport, Inc., has moved to new and larger offices. The new corporate quarters are at 47 Water Street in Norwalk, CT. They are part of a marine-oriented, waterfront development area.

Chronosport's premises include a second-floor showroom and a larger customer service area. "We have traditionally stressed speedy service," said Brian Pennell, president of Chronosport, "and our new, full-service facilities will allow us to maintain our quick turnaround time."

The expanded offices also offer more room for larger inventories and support services, such as computerized tracking of every watch sold by the company.

circle #114 on Reader Service Card

Commercial Diving Is Serious Business



The demand for natural resources from the sea has never been greater. Twenty years ago, there were only a handful of offshore drilling rigs located in coastal and gulf waters. Today, there are thousands of deep-water platforms throughout the world. The need for qualified personnel to man and operate these facilities is ongoing. Your entry into the world of deep-sea diving will be a most prestigious and rewarding career. *Not only is there a demand for divers in the oil industry, but underwater construction, salvage, farming and environmental awareness need trained technicians also.* Your first step to employment as a commercial diver is training.

Divers Institute of Technology (DIT) was founded by men who have successfully met the challenges of inner-space. They know from experience what it takes to get the job done. Retired Navy and professional deep-sea divers joined forces over 13 years ago to establish a commercial diving school that would train and graduate only qualified entrants to the industry. The success of the DIT program can be measured by our physical growth, the credentials we have attained, and not only the number of top workers we have supplied to major commercial diving firms throughout the world in the oil industry, but to companies in

salvage and repair, inspection, underwater farming, etc. *We do not specialize only in the oil industry as some schools do.*

Divers Institute of Technology developed a six-month course that set an industry standard. Training is based on a highly sophisticated deep-sea diving program that prepares you both mentally and physically to enter this new environment. Our curriculum has been designed to prepare you for gainful employment in *all fields* of commercial diving, *not only in the oil industry.* Classroom instruction deals in facts and theory. Open water instruction gives you the practical application of classroom techniques. *The culmination of your training is actual dives to depths of 200 feet. To our knowledge, we are the only commercial school that puts you to this test. The confidence gained from this experience is unequaled.* Before you decide which school to attend, check this point out. Many schools provide only simulated deep dives in recompression chambers and diving tanks on dry land.

After proper training and graduation, you are prepared to enter the commercial diving field. It is then that you will realize a great deal of responsibility comes with the territory. Responsibility to perform the tasks you were trained to do! Responsibility to your diving team and responsibility to all support personnel. *DIT will not graduate a student unless confident he possesses the ability to become a qualified commercial diver.*

OSHA SAFETY OFFICERS THROUGHOUT THE NATION HAVE BEEN TRAINED BY

D.I.T.

DIVERS INSTITUTE OF TECHNOLOGY, INC.

D.I.T. is accredited by Accrediting Commission of the National Association of Trade and Technical Schools.

Divers Institute of Technology's training facilities are practical. Our site of instruction is located on the Lake Washington ship canal where the water is murky and the visibility is poor; the same environment you will be exposed to in the industry. The equipment used in your training is what you will find in the field.

Send \$2.00 (U.S. currency only) for our catalog. It contains full disclosures, including course outline, employment statistics, instructor qualifications, tuition refund policy, standards of progress, financial assistance available, student loan policy, grants, placement assistance, etc.

**CHECK D.I.T. CURRICULUM
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INVESTIGATE D.I.T. FACILITIES
Judge for yourself who's best
qualified to train you right!**

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Association of Diving Contractors (ADC)
Institute of Diving (IOD)
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It's a shipwreck researcher's dream—volumes of information dealing with both well-known, and not-so-well-known wrecks. And yet, its potential is seldom tapped to its fullest, its stored knowledge infrequently explored.

The source mentioned above is the *Local Notices to Mariners*, published weekly by the Defense Mapping Agency, in conjunction with the Hydrographic Office, the National Ocean Survey and the U.S. Coast Guard. This collection dates back to the year 1880, and covers each individual week since. (Major libraries have these weekly editions bound into easy-to-use volumes.)

Each individual entry deals with an event of interest to mariners (whether it be the location of a wreck, the placement or alteration of a buoy, or the removal of both wrecks and/or buoys).

It must be remembered that in the days of the predominance of coastal shipping, wrecks which occurred owing to collision, grounding or weather-related incidents were of major concern to those plying the same waters. And even if the wreck lay in relatively deep water (75 to 100 feet deep), its masts would be con-

sidered dangers to navigation.

When the researcher has focused in on a particular wreck (or location), he can turn to the *Notice to Mariners* and find an astonishing amount of detailed information as to where the wreck went down.

Why then, has this source been so poorly used in the past? What reasons can there be for not using such an invaluable source?

First, the sheer magnitude of volumes has shied away many an ardent researcher. From its inception to the present there have been almost 5300 issues published. But, other than the vast amount, the inconsistencies of the *Notices* leads to confusion. Over the years, although the material covered has not varied, the style certainly has.

A few key points to clear up the confusion, and assist in unlocking the key to the *Notices*:

As previously stated the *Notices* were first published in the year 1880, and have continued on a weekly basis through to the present day.

The *Notices* have been published by different governmental organizations (i.e. the U.S. Hydrographic Office, the Department of Commerce, and the Coast & Geodetic Survey). The different organizations have used a variety of formats—those published by the U.S. Hydrographic Office tend to be more explanative than

others. But, even these adopted a briefer format in the mid-1920's.

Certain annual volumes have excellent indexes. But be careful! Some biannual volumes have indexes for both volumes, and certain entries are noting the discontinuance or alteration of a buoy marking a wreck, without mentioning the wreck.

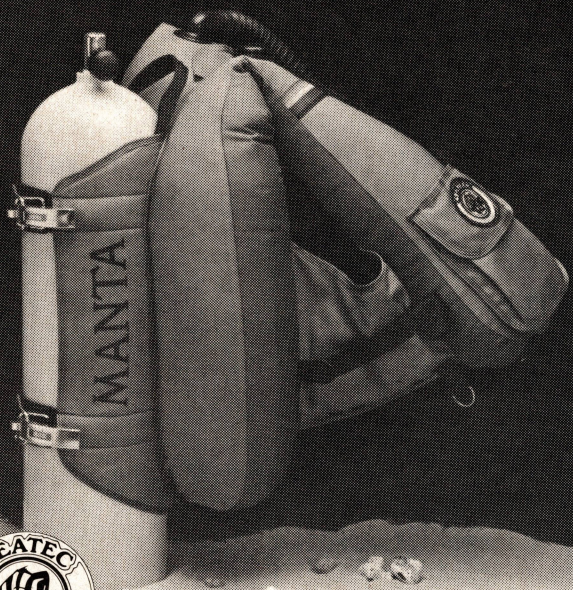
Many volumes are not indexed, either annually or biannually. This requires that the researcher review either the first pages of each issue or the section of possible material in each individual issue. This is a very slow process.

Be careful when you read each entry to look for references to previous entries, which may not have mentioned the wreck by name, instead calling it an "obstruction" or an "unknown wreck."

Also, be careful when reviewing subsequent entries. They can be very repetitive. And this repetition can easily lead to boredom, or worse, over-looking a revision in the wreck's position, or bearings. Oftentimes the *Notices* regarding a buoy to be established and a buoy that was established are identical, with the exception of one key detail—the depth at mean low water, a bearing or land range, etc. Don't overlook anything!

Once you've discovered how to use the *Notices to Mariners* it will become an invaluable tool for shipwreck research. Best of luck and "take notice!"

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Sid Pac's GEAR BAGS

Easy Care Collectors And Carriers

BY BONNIE J. CARDONE

Although you may start out schlepping your scuba gear around in an old sea, laundry or other used bag, sooner or later you'll want something made especially for divers. If that time has come for you, or if your current bag is showing signs of imminent disintegration, you should take a look at the two bags sold by Packaging Incorporated. Called the Diver's Duffle and the Camera Bag, they come in bright blue Cordura nylon with white zippers, straps and trim.

The Sidpac Camera Bag is 15 inches long, nine inches wide and nine inches high. Inside is a removable, one-quarter inch thick, foam pad. This is held in place by sleeves on the inside. It is impact resistant and cushions your gear. It also gives the bag a certain amount of rigidity. Vinyl coated polyester mesh panels on both ends allow air to circulate through the bag. A brass grommet on the bottom allows for drainage. This is one camera bag into which you can put wet gear. On

each side of the bag there is an eight inch long pocket that fastens with Velcro. These can be very handy for carrying spare batteries, film cassettes, filters and other small items.

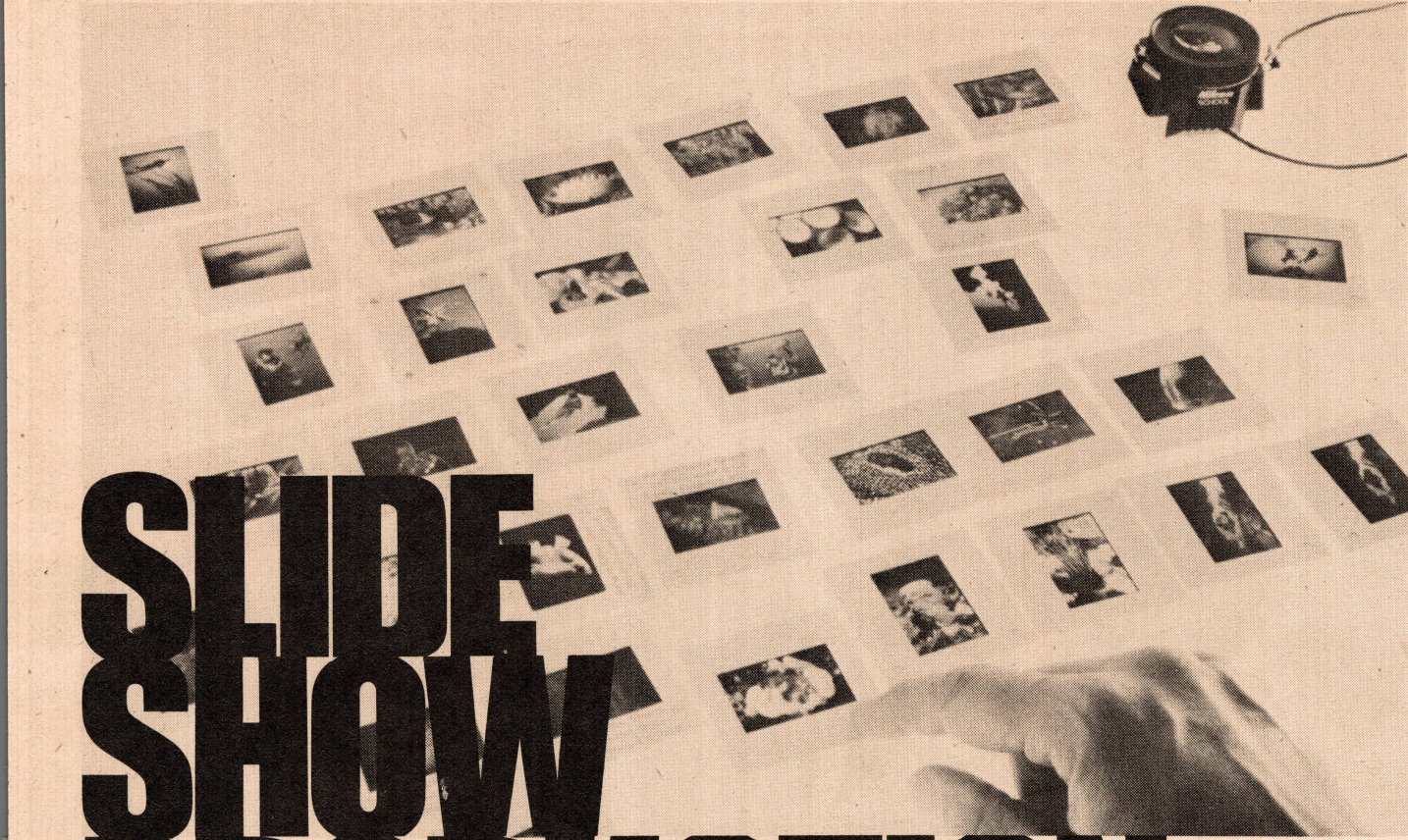
The Camera Bag has both an adjustable shoulder strap and handgrips of sturdy nylon webbing. The latter snap together with a vinyl handle. The bag closes with a two pull, nylon zipper.

The Sidpac Diver's Duffle is 26 inches long, 12 inches wide and 13 inches tall. Basically, it is a larger version of the Camera Bag minus the foam pad and plus a few items. It, too, has mesh panels on both ends for ventilation and a grommet in the bottom for drainage. The handy side pockets with Velcro closures are ten inches long. The white nylon straps reinforce the bottom of this bag and four triangular D-rings allow for accessory attachment. All hardware on the bag is heavy cadmium plated steel. There is an adjustable (and removable) shoulder

strap and handgrips that snap together with a vinyl handle. This latter makes carrying either bag more comfortable since there are no straps to cut into your hands. Optional shoulder straps are available for the Duffle (\$5.95) to convert it to a backpack. The Duffle also has a sturdy nylon zipper with two pulls.

Both Sidpac bags are sturdy, easy care gear collectors and carriers. The Cordura material needs no special care, just rinse with fresh water when needed and let dry. And, it will keep its bright blue color for years.

Sidpac also makes a padded bag for prescription masks. This has two pulls so you do not have to remove your snorkel every time you put the mask away. All three Sidpac bags are sold by Packaging Incorporated, P.O. Box 7206, Tulsa, Oklahoma 74105—see them at your local dive store. The Camera Bag sells for \$35; the Diver's Duffle is \$59 and the prescription mask bag sells for \$12.95. 



SLIDE SHOW PRODUCTION

**TEXT AND PHOTOGRAPHY
BY JIM AND CATHY CHURCH**

This is the last part of a three article series on preparing two projector, sound/sync slide shows. It covers the techniques of assembling and programming. The equipment needed was covered in the November article, the photography in December.

WHERE TO START

There are two basic starting points: You can start with the music, or you can start with the slides. But once you've started assembling a show, you usually end up going back and forth between selecting music and slides.

If your show will be a montage of your best slides, it may be best to begin with strong music that has a number of mood and tempo changes. Then arrange the slides to fit the music. The music will provide a foundation for the show and create an illusion of continuity for the flow of images on the screen.

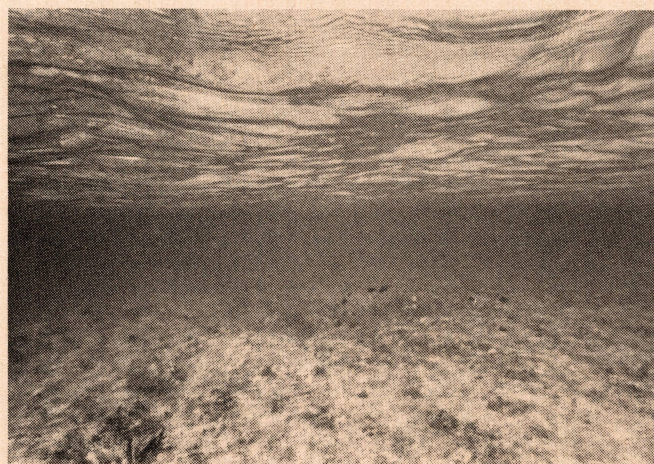
If your show has a strong story line, you must begin with the slides. But, starting with an unalterable sequence of slides can cause timing problems. It will probably be difficult to find music that has the exact length and beat to match them. Thus, you must be prepared to remove or add slides to your sequences or edit the music.

HOW MANY SLIDES

Starting with the music gives you a reasonable estimate of the number of slides needed. Let's assume that each one will be on the screen for an average time of five seconds. Therefore, time the music and convert the number of minutes into

**Add the professional
finishing touches—
timing is everything**

To dissolve, begin with an empty scene and fade the next in.



seconds. Divide the total number of seconds by five, and the quotient will be a rough estimate of the number of slides you will need.

In fast sequences, of course, each slide may be on the screen for only one or two seconds. But don't maintain such a fast pace for long unless the slides are similar and provide an illusion of motion.

When using slow dissolves, you may need a total of 10 to 20 seconds to dissolve a slide on, allow it to remain for a few seconds and then dissolve it off slowly. But don't overdo long dissolves. Your show will be more interesting if you vary the pace.

SELECTING MUSIC

Selecting the appropriate music is often the most difficult part of preparing a slide show. While almost any music may be better than none at all, don't fall into the trap of merely selecting your favorite record and then changing slides every five seconds. The music must fit the theme and the slides; and if you have abrupt changes in location or mood, you usually need a change of music. We'll give you some specific examples of how to select music.

For a group of sequences showing a swarm of sergeant majors chasing and harassing a diver, we used passages from the Flight of the Bumblebee. Because Jim had secretly smeared liverwurst on the tank of the diver, the sergeant majors performed the chase scenes with gusto, but it was the music that kept the action moving.

For a comical show—which featured Jim capsizing a dinghy, and the subsequent rescue—several tightly edited passages from a Spike Jones album set the mood of the show. We used over 20 separate cuts—ranging from two notes to several measures of music—spliced together for the soundtrack. Likewise, old-time player piano music can add humor to your slides of a playful grouper. Or, tinkling piano music can highlight schooling

minnows. For the light-hearted, traveling diver show, listen to Chet Atkins, Jethro Tull and Leo Kottke. And, for your mysterious shipwreck shots, try some slow passages from Schubert.

On the other hand, if your show has dominant narration, you may want music that is inconspicuous and doesn't compete with the slides or narration.

Generally, the music should have a beat that coincides with the slides as they appear on the screen. Jazz, however, is sometimes too complex. The beat is there, but it may be hard to work with.

The music shouldn't make the audience think of something else. If you use the Superman theme, for example, the audience's thoughts may well drift away to the movie. But if your subject is doing something that would mimic Superman, the music would be appropriate.

If you have powerful music in mind, it may inspire you to take better pictures for your show. When we were photographing our Truk Lagoon slide show, for example, we had already selected some music. We listened to this each evening as we planned the next day's shots.

ARRANGING YOUR SLIDES

Lay your best slides on a light box or light table (the bigger the light box, the better), and sort them into sequences and related groups. In a second area (a second light box is ideal), lay out slides of empty scenes, transition shots, cut-aways, cut-ins and slides where your strobe didn't flash. You will be coming back for these as you need them.

Arrange the slides into a tentative show sequence and look at each in order as you listen to the music. Point at each slide as you imagine it on the screen, and tap your foot with the beat of the music. If you plan a slow dissolve, lift your hand slowly from the slide that will fade off, and bring it down toward the next slide as you visualize it fading on. Keep your finger on the mount for another few seconds to assure that the slide will be on the screen at full

brilliance before the next slide comes on. For fast cuts, move your hand immediately to the next slide.

The objective is to get a feeling for the pace of the show before you load the slides into trays. It is easier to add or delete slides while they are on the light table, rather than trying to visualize changes while they are in the tray.

Don't be tempted to use bad slides to fill up time. The audience will remember your worst slides—especially if you leave them on the screen long enough for critical examination. Don't use slides of the same subject more than once or twice unless they produce an action sequence, or the photos are each very different. And, don't be tempted to show 100 slides per minute just to get in all of your favorites before the music is over. Maintain a comfortable viewing pace by editing your slides or the music.

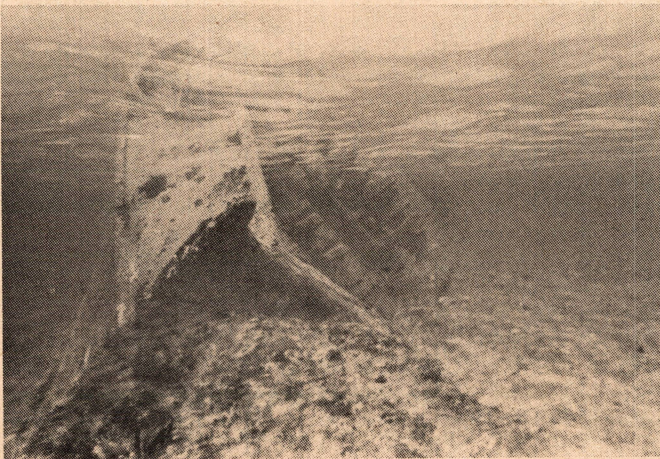
To previsualize how slides will dissolve together, lay one over the other on the light box. Look for points of interest that will be enhanced by the dissolve. The following paragraphs give examples:

If a slide has a bright, centered subject, such as a yellow sponge, and is to be followed by a slide of another bright, centered subject, such as an angelfish, use a fast cut. If you use a slow dissolve, the blending of the two images on the screen can create several moments of confusion during which the viewer can't identify the new subject.

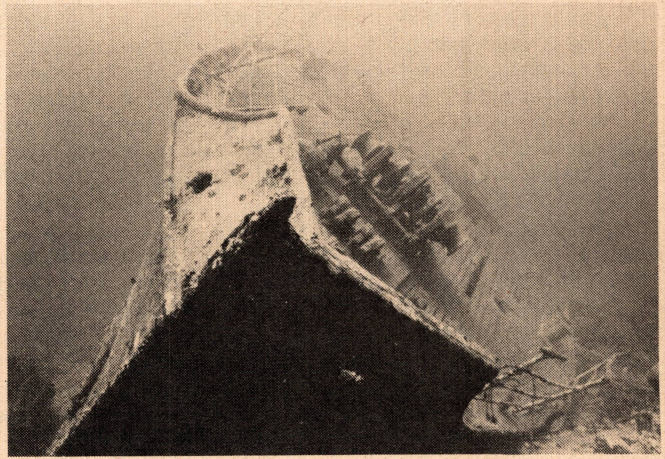
Generally, fast cuts should be used when changing from a horizontal to a vertical format or vice versa. Try to group your slides to minimize the number of format changes.

Long dissolves are best used when a strong point of interest in one slide is dissolved into a open area of another slide. For example, suppose that the first slide has a colorful reef formation on the right, and an open midwater background on the left. A second slide—with a single, bright fish on the left—can be dissolved slowly onto the reef scene. You look first

At the peak of the dissolve the audience will see both scenes.



At the conclusion of the dissolve only the wreck is visible.



at the subjects on the right. Then, during the dissolve, the fish starts to appear in the empty area. The fish may have a ghost-like appearance at first, but the audience is never confused as to its identity.

Because we read from left to right, we usually prefer pictures that lead our eye in that direction. But in a slide show, avoid repeatedly drawing the viewer's eye to the right side of the screen without showing slides that draw it back to the left again. If, for example, a slide shows a fish facing left to right with implied movement in that direction, follow with a fish that draws the viewer's eye back to the left side of the screen.

If using two slides of the same subject, in sequence, the second one should be taken with a different camera angle, or have a different image size.

Slides with strong leading lines and shapes have good dissolve potential. The long, slightly curved body of a trumpetfish could be dissolved over the long, slightly curved railing of a wreck. Likewise, ovals can follow ovals and angles can follow angles.

Flash light areas over dark areas. For example, a close-up of a bright yellow butterflyfish, photographed with a dark background, can be flashed into an empty, dark area of another slide. This can be most effective if the butterfly's image size is small because you can flash it into a small, dark area.

Colors are also important because those of both slides blend during a dissolve. Red dissolved with green, for example, produces yellow while both images are on the screen. And, red dissolved over white can produce a lovely pink. The colors produced by the dissolves add an entirely new effect to your slide sequences.

Once you have completed the basic sequences of the show, load the slide trays. If the only special effects are dissolves, every other slide will go in one tray, and the remaining slides in the other. However, depending on the particular dissolve unit, if you have flips or flashes, you may sometimes have two or more consecutive slides that go together into the same tray.

If your projectors shine a beam of light onto the screen when there is no slide in the projector gate, insert blanking slides at the beginning and end of the series of slides in each tray. You can make a blanking slide by placing non-translucent, black paper in an empty slide mount to shield the screen from the lamp.

Make a couple practice runs with the projectors and dissolve unit. You can expect that some dissolves won't look as good as you had hoped, and that some transitions will be rough. And, you will need to fine tune your pace by editing the slides. Put the slides back on the light box for fine tuning.

NARRATION

If the purpose of your show is to inform, live narration is usually best because you can adjust the pace and content to fit your particular audience. But, if the narration is subordinate to music and is used sparingly, it is usually best recorded as part of the music soundtrack. This allows you to perfect your timing and balance the volume with the music.

If the slide shows a particular animal, name the creature while explaining something interesting about it. Don't just say, "This is an octopus." Rather, you might say, "The octopus changes color as his mood changes." Or say, "This octopus is about eight inches across." Sometimes a single sentence—with appropriate pauses—may be used to narrate several slides.

Don't feel obligated to talk about every slide. If the subject is obvious, and the slide beautiful, the background music can provide continuity. Having a few slides go by without narration can be a good change of pace. This is an especially good technique if you have introduced a sequence of slides arranged in a logical order.

RECORDING THE SOUNDTRACK

While the soundtrack can be made before or after the slides are arranged, we prefer to work on both simultaneously. Cathy works with the slides, and Jim works with the recording equipment. Thus, both the slide selection and music can be edited as the show progresses.

The simplest way to make a soundtrack is to record a record or tape without editing, but it is often difficult to find an entire composition that fits your slides.

We prefer to edit selected passages from several different compositions, and sometimes supplement these with cuts from special sound effects records. At the most, we only use about one to three minutes of any given passage before cutting to something else. For simplified editing, you need a reel-to-reel tape recorder and tape splicing materials. You physically cut out the passages you need and splice them together. And, for adjusting the spacing between passages, splice in small amounts of leader tape.

If you record narration, don't use an automatic volume control. When the narrator isn't speaking, the automatic control increases the volume which causes a hum or hiss to be recorded. Also, for a serious show, consider having a trained speaker do your narration. Contact your local theater group or high school speech teacher for recommendations.

After the master tape is recorded on reel-to-reel, copy it onto a cassette with your AV recorder. Cords are available from Radio Shack and hi-fi stores for making tape copies. The cord plugs into the output of one recorder and into the in-

SOURCES OF MUSIC

Whenever you copy copyrighted music, legally you need written permission from the recording company, composer and performer.

An inexpensive way to start your search is to check out as many records as you can from your local library. Play them and make notes as to which contain passages (not necessarily the entire composition) you might use. Generally, instrumental arrangements are best because voice may compete with the slides. Because the library records may be scratched, you may have to buy a new one or a tape, but at least you know what to buy.

Ask about sound effect and special background records for home movies and slide shows when you go to the library and to record shops. These often have short passages you can edit together for an effective sound track.

You can purchase a five-volume set of background music for slides and home movies (\$21.95 for LP records, \$29.95 for audio cassettes) from: Photographer's Gallery of Music & Sound, P.O. Box 278, Pratt Station, Brooklyn, New York 11205.

For commercial use, several music libraries sell a wide range of production music and sound effect records or tapes. Generally, they furnish a catalog and sometimes sample music. You buy the record or tape needed, and pay a fee for those segments of music you use commercially. Minimum fees average about \$30 per piece of music for non-broadcast use. Four such libraries are: Capitol Production Music, 1750 Vine St., Hollywood, CA 90028; Network Production Music Library, Inc., 4429 Morena Blvd., San Diego, CA 92117; NFL Music Library, 330 Fellowship Rd., Mt. Laurel, NJ 08054; Omnibus, 52 Main St., Port Washington, New York 11050.

When you use copyrighted music, you must have written permission.

put of the other. If you don't have an AV recorder, and will be using the reel-to-reel recorder to record the soundtrack and cues for the finished show, try to make a copy of the master tape with another reel-to-reel recorder because tape splices can break during a show.

The amount of editing you do depends on the purpose of the soundtrack and how much recording equipment you have or can borrow. Jim uses a two track reel-to-reel recorder to feed edited sounds and music into a four track recorder. He then uses a microphone mixer to blend the four tracks into a single track for our monaural AV cassette recorder.

PROGRAMMING

Although you've made practice runs—while pointing to the slides on the light box and again with the dissolve unit and
(Continued on Page 100)

DIVE BOATS

A speedy, economical dive boat

TEXT AND PHOTOGRAPHY
BY STEVE LUCAS

the Big Seasquirt

Economical. If only one word could be used to describe this great little dive boat, that would have to be the one. The 18 foot 3 inch hull of this boat is clean, usable and very well laid out. Don't let the name mislead you should you tend to equate it with a slow moving, bottom dwelling reef creature. This boat is certainly no slug! In fact, our test boat, equipped with a considerably smaller engine than the maximum allowed (115 hp) could really scoot. One test report, supplied by the manufacturer, VIP Marine Industries, Inc. showed that when equipped with a Johnson 75 hp (such as our test model) the boat could hit speeds approaching 40 mph. At 4000 rpm and a speed of over 22 mph, the boat used only 2.85 gallons per hour. Translated to more understandable terms that comes out 7.86 miles per gallon. In boating circles that is both impressive and economical!

This spirit of economy permeates the entirety of the Big Seasquirt. In addition to its ability to use smaller, less expensive engines and conserve fuel, the boat is very economical in the way available space is used. The design leaves plenty of room for four or more divers while giving ample, and anything but stingy, amounts of storage. There are two lockers in the forward deck. One opens by removing a deck hatch, the other by opening a teak hatch door. Under the console there is plenty of room to store fragile equipment such as cameras. We placed several medium sized photo cases in this compartment with ease. Still more storage is available under the seat behind the center console. This space is normally used as a live baitwell. In fact the boat can be used for a multitude of purposes since its size, weight and design make it equally as useful for water

skiing and fishing as it is for diving.

Economy does not mean cheapness in the Seasquirt. In fact this all fiberglass boat is built with an expensive process requiring both hand layup and hand laminating. When we visited the factory in Ft. Lauderdale, Florida, we saw craftsmen carefully going over each hull making sure that the contours of glass were free of ripples. The boat is built with six glass layups over the majority of the hull and 12 on the keel. Its modified deep V design allows for dry running in moderate seas and makes it suitable for both the open ocean and inland lakes. The 18 foot plus hull is 6 feet 11 inches across the beam and weighs between 950 and 1050 pounds. It can carry a gross load of nearly 1500 pounds allowing for a lot of dive gear. Since the boat is relatively light weight it is easily trailered. This produces added savings for the diver since it does

not require the owner to have a semi truck and own stock in a local gas station to afford getting the boat to the water.

In addition to the features already mentioned there are a number of valuable and useful accessories that are either standard or available as options. Since the boat is engineered to be a gas miser the standard fuel tank is only 17 gallons in capacity. This should allow for upward of five hours of continuous running with moderate engines. If you must have more fuel capacity you can order the optional 40 gallon tank. With a 75 hp motor operating at a moderate speed that will let you run almost 300 miles nonstop!

Other standard features include stainless steel bow and console railing, teak console locker hatch and navigation lights. The center console is equipped with a tinted windshield and a flat upper surface large enough to mount a compass, depth finder, radio gear or other accessory navigational equipment. Since the hull is under 20 feet, the Coast Guard requires that foam flotation be installed as standard equipment. Optional equipment divers may want to consider can include a vinyl Bimini top which is equipped with sliding track; a zippered boot; bow and pilot seat cushions; and speargun (rod) holders. Your dealer can also install dive platforms and teak tank racks. Although these options are not listed in company literature the factory personnel showed us several of the platform, ladder and tank rack designs that are available. Each appeared well made and your local dealer can advise you of the ones which will

best suit your particular needs.

The Big Seasquirt made available to us for testing came with a good deal of notable praise. The boat is owned and used regularly by the editors of Florida Waterways Magazine, a Florida East Coast boating and fishing magazine. We had been told that we would not be disappointed with the quality, construction or usability. We were not. The boat jumped quickly to a plane on the choppy water of the Atlantic. Even with five people aboard she ran quite dry and clean and no one offered any complaints.

The most pleasant economic news about the Big Seasquirt that we can give you is the price: \$5,850 less motor and

trailer. With a dealer network that extends from California to New York, Florida and the Bahamas this boat can serve your needs wherever you dive: Baja, Catalina, the Florida Keys, Nassau or the lakes of mid-America!

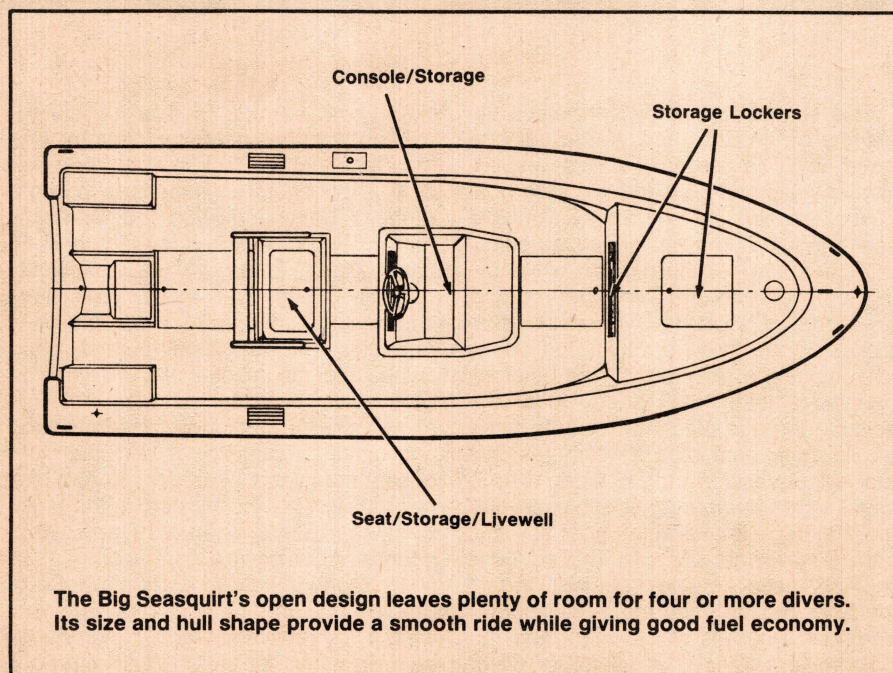
If your idea of a dive boat is one that has few frills, plenty of user features and an affordable price, this one deserves a look. If you can't easily locate a Seasquirt dealer you can contact Rosanne Gillis, President, VIP Marine Industries, Inc., 3798 Ravenswood Road, Fort Lauderdale, Florida 33312; (305) 581-5451. She will gladly put you in touch with a dealer near you and send you all available information on the boat. ➤

BIG SEASQUIRT

Length.....	18'3"
Beam	6'11"
Depth	30"
Weight.....	950-1050 lbs.
Load.....	1495 lbs. max.
Power.....	50-115 hp outboard
Fuel tank.....	17 gal. std., 40 opt.
Price	\$5,850



Above and below: The Big Seasquirt has two storage areas forward. One has a deck hatch and the other a teak door.



The Big Seasquirt's open design leaves plenty of room for four or more divers. Its size and hull shape provide a smooth ride while giving good fuel economy.



Scuba Quiz

Category: Conservation

By Dennis Graver

Conservation is everyone's business. Divers as a group are particularly involved with conservation because they see what happens when it isn't practiced. What should be done? See if you are aware of our problems and what to do about them. Select the best choice for each question. The answers are on the following page.

1. Conservation is defined by fish and game officials as:

- ☐ A. Abstaining from use of the resources
- ☐ B. Obtaining the maximum yield from the resources
- ☐ C. Wise use of the resources
- ☐ D. None of the above

2. Select the pollution with the most detrimental effect on the dive environment:

- ☐ A. Oil spills
- ☐ B. Litter
- ☐ C. Sewage
- ☐ D. Thermal pollution

3. Select the litter which produces the worst effect in the dive environment:

- ☐ A. Plastic bags
- ☐ B. Cans and bottles
- ☐ C. Food
- ☐ D. Paper

4. DDT in fish is usually contained in:

- ☐ A. The fat
- ☐ B. The liver
- ☐ C. The meat only
- ☐ D. The entire fish

5. Phosphates from non-biodegradable detergents can produce which of the following effects in the dive environment:

- ☐ A. An algae bloom
- ☐ B. Oxygen depletion in the area
- ☐ C. Large fish kills
- ☐ D. All of the above

6. Which of the following has the greatest impact on the fish population:

- ☐ A. Spearfishing
- ☐ B. Commercial fishing
- ☐ C. Sewage and industrial wastes
- ☐ D. Thermal pollution

7. Which of the following actions would have the greatest positive effect on aquatic resources:

- ☐ A. Stopping the dumping of sewage and industrial wastes
- ☐ B. Banning the taking of all game by recreational and commercial interests
- ☐ C. Stopping the use of non-biodegradable detergents and DDT
- ☐ D. Preventing offshore oil development and hydroelectric thermal pollution

8. Fish and game laws are typically based on what percentage of a yield from the resources:

- ☐ A. 15 percent
- ☐ B. 10 percent
- ☐ C. 5 percent
- ☐ D. 3 percent

9. Which of the following practices is most detrimental to the management of aquatic resources:

- ☐ A. Taking undersized game
- ☐ B. Taking game out of season
- ☐ C. Taking more than the legal limit of game
- ☐ D. All are equally detrimental

10. Which of the following actions by an individual would contribute most to conservation:

- ☐ A. Abstaining from taking anything from the environment
- ☐ B. Avoiding polluting the environment in any way
- ☐ C. Increasing awareness of the causes of pollution
- ☐ D. Obtaining evidence of large-scale pollution and reporting it

Scuba Quiz

Answers: Conservation

1. C. Wise use of the resources.

Fish and game commissions and the Dept. of Fisheries have defined conservation as, "The protection, management and wise use of natural resources."

The objective is to determine the sustained yield our resources will bear and to then take measures to protect them so that sustained yield will be possible. The issue of today should be the protection of the resources from pollution, not the methods used to take the yield.

2. C. Sewage. Nearly a million gallons of sewage are dumped into our waters daily from just one major city. This sewage is broken down by bacterial action, which consumes very large quantities of oxygen. This can lead to the extermination of fish and other aquatic life. Heavy metals and industrial effluents in sewage also poison animals and inhibit their ability to reproduce. Improved treatment of sewage should be of major concern.

3. A. Plastic bags. While unsightly and hazardous, cans and bottles actually provide homes for many creatures. Tossing them into our waters is certainly not encouraged, but their effect is not as great as many imagine. Food and paper are also unsightly, but are, thankfully, biodegradable. Such litter should not be condoned. Non-biodegradable materials, such as plastic bags and foam cups, are very hazardous to the environment. They are eaten by animals who die as a result.

4. A. The fat. DDT is passed along from animal to animal in the food chain. Man is included in this chain, and the residual DDT is unhealthy. Much of the DDT in fish can be avoided by trimming the fat, which contains most of the pesticide present. Fatty sections that can be trimmed are located along the belly and under the dorsal fin. Generally, predatory fish contain larger amounts of DDT than those with different diets.

5. D. All of the above. Phosphates stimulate algae growth, which would seem to create oxygen, but as the algae dies, decomposition uses oxygen and produces hydrogen sulfide, which, in turn, causes a reaction that uses still more oxygen. The overall effect is the suffocation of life from a lack of oxygen. Phosphates can also cause rapid plant growth, which can seriously clog waterways. The use of low-phosphate detergents should be encouraged.

6. C. Sewage and industrial wastes. Contrary to what many believe, our greatest problem is not what is being taken or how it is being taken. Many times more life is destroyed because our waters are used as dump sites and septic tanks. If the pollution from sewage and industrial wastes could be stopped, our yield could increase.

7. A. Stopping the dumping of sewage and industrial wastes. This is to further emphasize a serious problem. Oil pollution, which receives a great deal of publicity and which is detrimental, is not nearly as serious as the silent poisons from commercial dumping which are not as obvious. Phosphates are also detrimental, as is thermal pollution, but, once again, de-

struction caused by these forms of pollution doesn't come close to that produced by sewage, municipal wastes and industrial effluents.

8. B. 10 percent. If protected, a given resource should permit a sustained yield of 10 percent, but indiscriminate violation of regulations designed to manage and protect the resources combined with the effects of pollution can seriously deteriorate the base which is supposed to sustain the yield. We must control pollution and put an end to game-taking violations.

9. D. All are equally detrimental. Extensive studies are conducted to determine the extent of a resource, and the management of the resource is then based upon the existing base. If this base—the breeding stock and the juveniles of a species—is altered through greedy practices, the management of the resource is rendered invalid. Game laws and regulations are designed to allow the continued taking of game for food, not its prevention. Violations reduce our ability to enjoy the resources in the future.

10. C. Increasing awareness of the causes of pollution, or D. Obtaining evidence of large-scale pollution and reporting it. We must concern ourselves with the slaughter caused by pollution and work individually and collectively to arrest it. We should follow good conservation practices, but stopping just one major source of pollution would have more effect in a year than the banning of spearfishing throughout the world for decades. Let's work to increase awareness of pollution.

Surprised? Many divers believe that conservation means abstaining from taking anything from the environment. Hopefully, you have seen this should not be an issue. Protection through the arresting of pollution needs to be the topic that we pursue to bring about change. If you scored well, that's good; but if you are also exerting influence to clean up our waters, that's even better.

It's one sleek CAT you can easily customize

SCUBAPRO'S BLACK PANTHER

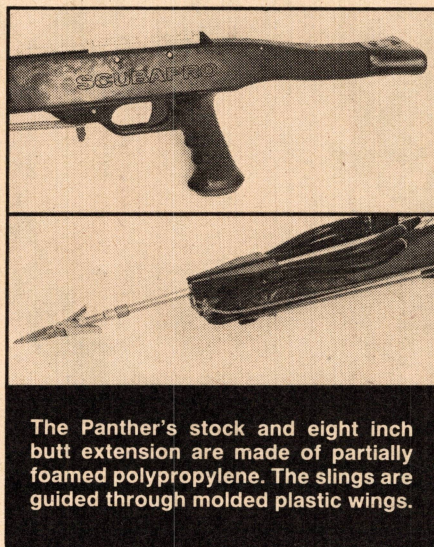


TEXT AND PHOTOGRAPHY BY FRED FISCHER

The elegantly sculptured, black 36 inch Panther is Scubapro's top of the line speargun. Its one-piece body construction is reminiscent of the old wooden guns prized by serious spearfishermen. Standard features of this medium size gun include open muzzle loading; twin one-half inch rubber slings; a five-sixteenths inch diameter, 36 inch long shaft; two barb spearhead; extended loading stock; and positive buoyancy once the shaft has been fired. Gordy Heck, sales representative for Scubapro, points out that solid construction makes the Panther one of the easiest to customize—you can screw a reel or flotation system onto the stock as well as add an extra sling and three-eighths inch shaft. A smaller, 26 inch Panther is also available for spearing smaller fish, diving in limited visibility and hunting around rocks.

The 45 inch frame of the Panther, including the muzzle, sling guides, pistol grip and loading stock, is molded as one piece from black polypropylene thermal plastic. It is partially foamed for buoyancy and filled with glass fibers for strength. Unlike the hollow tube construction of other guns, this one can't leak. A shallow groove along the top of the barrel cradles the shaft over the entire length to improve accuracy. The eight inch butt positions the slings further out from the diver's body during loading, thus improving the mechanical advantage of one's arms and allowing greater visibility of the cocking action. The flared buttcap helps to distribute the pressure.

The five-sixteenths inch diameter stainless steel shaft measures 36 inches (39 inches with the standard six millimeter thread double barb spearhead). The optional three-eighths inch shaft provides



The Panther's stock and eight inch butt extension are made of partially foamed polypropylene. The slings are guided through molded plastic wings.

more penetrating power. Three notches spaced one and one-quarter inches apart are cut for the slings and there is an additional notch on the spear bottom for the trigger. A groove in the end of the shaft prevents rotation.

The two slings are made from 17 inches of heavy walled one-half inch black rubber tubing with stainless steel wishbones. There is an elongated hole on the front of the gun which holds the slings, and they are guided through molded plastic wings to a position parallel to the shaft for a straight pull. Space is provided for an additional sling for added power. The stretch required ranges from 18 to 20.5 inches, depending on which notches on the shaft are engaged.

Triggering can be done with the index finger while holding the grip with either hand. The action is smooth, unaffected by the number of slings, and permits "squeezing off" a shot. The safety is conveniently located directly above the trigger and is engaged by pushing a slide through the frame with the thumb or index finger. Although difficult to read, the

words "fire" and "safe" are engraved on the safety as a reminder.

A 10 foot nylon cord attaches to the spear shaft by a coiled stainless steel slide ring. It is important that the slide ring be inserted in the very end of the muzzle rather than further back or the muzzle will be destroyed upon firing. During loading the nylon cord is run back and forth four times and slips over the cord release with the aid of an in-line stretch cord.

Loading the Panther is straightforward. With the slide ring at the tip, the shaft is positioned in the groove on top of the barrel and pushed backward into the trigger housing, where it locks. The line is wrapped twice around the line release and a hook at the muzzle. With the safety engaged, the two slings are stretched to the slots on top of the shaft.

Open water testing of the Panther speargun took place in the kelp off Encinitas, California. Thoughts of spearing a large kelp bass competed for the orderly evaluation of balance, loading and accuracy of the gun. The incredible commotion created by my dive buddy, new to spearfishing, made the latter more viable. We began by timing the loading sequence and found it to range from one minute at first to half that time with a little practice. For accuracy I had my buddy shoot empty soft drink cans tied to the kelp while I observed from the side. At the limit of visibility (10-12 feet) all shots made the target. Triggering was smooth. Free of the shaft, the gun floats just off the bottom. (The spearfisherman might consider marking the gun with a little yellow paint; its blue and black coloration makes it hard to see.) The loaded gun falls horizontally then settles into a nose dive. Pre-firing was not a problem even though I tried to trigger it by knocking the loaded gun with my hand and against the rocks.

The 36 inch Panther speargun is available from your Scubapro dealer for \$135 (1982 price—1983 prices were unavailable at this writing). For more information contact Scubapro, 3105 East Harcourt Street, Rancho Dominguez, California 90221.

AMF MARES

AMF Mares MR12-III



TEXT AND PHOTOGRAPHY
BY GEORGE COZENS

A lot can be said about the long and successful track record of a product: briefly put, it has withstood the test of time—many years of field experience, and acceptance by the consumer. A case in point is the regulator featured this month: the MR 12-III, by AMF Mares. The original MR 12 (the first in the series), introduced back in 1966, was part of the Voit Swimaster line of dive equipment. It was widely used and distributed for a number of years. Then, in 1975, the regulator's second generation was born. This was designated the Swimaster MR 12-II. Although the first stage remained essentially the same, big changes were made in the second stage—changes significant enough to warrant the issuance of a patent to the company and the inventor of the unique second stage design, Bill Oliver. The MR 12-II, with its improved performance, enjoyed continued success (including worldwide use) as a good, solid regulator, until last year. At that time further changes resulted in the development of the MR 12-III.

In case you hadn't noticed, the MR 12-

III is now made by Mares (a subsidiary of AMF), which acquired the manufacturing rights to the regulator when Voit (another subsidiary of AMF) changed the emphasis of its product line. Distribution of the AMF Mares product line in the United States, including the MR 12-III, is handled exclusively by SeaQuest of Solana Beach, California.

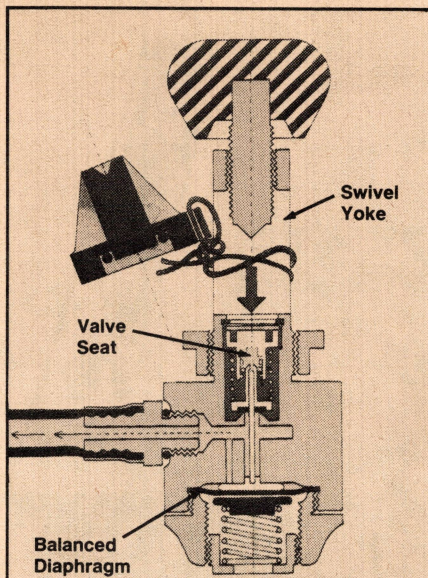
Let's look now at the latest generation of this well established regulator. The first stage is a balanced diaphragm design, like its ancestors. But, unlike the earlier models (the yokes of which were an integral part of the body), the MR 12-III has a forged brass, chrome plated, swivel yoke for use on U.S. type tank valves. Not only does the yoke swivel, for easier first stage positioning and less hose strain, it is also removable and adaptable to DIN connections, for diving with European type valves. Because of the change in the type of yoke, the current model has a different body shape than its earlier relatives. It also offers more ports: One high pressure port and four low pressure ports. The first stage body, however, is

still made of chrome plated brass.

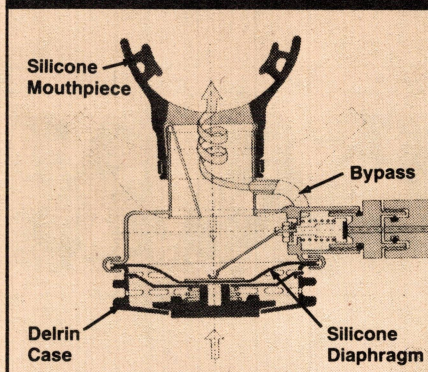
The major components of the internal mechanism consist of a nylon reinforced neoprene diaphragm; an adjustable, stainless steel spring (for setting the intermediate pressure, which typically ranges from 120 to 135 psi); and a high pressure valve seat of an elastomer compound, which resists taking a set (that can affect the regulator's fine tuning). Indeed, the balanced diaphragm mechanism is quite simple. With less movement in the mechanism, there is less friction and wear. It has the added advantage of being sealed against the environment: By virtue of its design, no water or contaminants contact the internal, moving parts.

The most striking feature of the second stage is a tube that runs from a point at the base of the hose connection directly into the mouthpiece. This bypass tube is part of the reason a patent was issued on this second stage design.

If you've been reading the current series of SDM articles on regulators, or the promotional literature from regulator manufacturers, you've been confronted

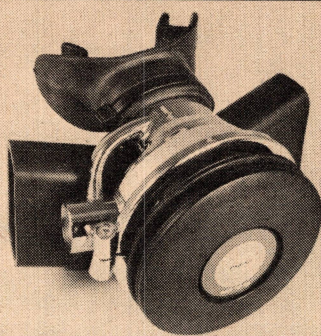


The MR 12-III first stage (above) has a removable swivel yoke. The second stage (below) has a special bypass.

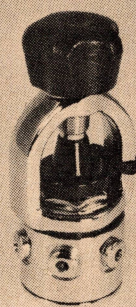


with references and claims regarding the reduction in inhalation effort provided by a phenomenon called venturi. In this design air is guided through the second stage in such a way as to create a region of lower pressure behind the diaphragm, tending to suck it in more, opening the demand valve further, and increasing the flow of air to the diver. The purpose of this venturi, then, is to increase the supply of air, without making the diver do any additional work. Although simple in principle, harnessing the venturi effect is much more complicated, and various manufacturers have used different methods in an attempt to control it.

Wanting to avoid the problems of trying to control the venturi effect, Bill Oliver developed the bypass tube concept, which was first introduced with the MR 12-II in 1975. In this design, when air is demanded by the diver at higher flow rates, all of the air is channeled from the supply valve through the bypass tube directly into the mouthpiece, where it glances off an angled plate, setting the flow of air into a spiral motion within the mouthpiece tube.



The second stage (above left) has a Delrin front case cover and silicone mouthpiece. The first stage has one high pressure port and four low pressure ports in a sturdy, chrome plated brass body.



The effect of this vortex is to create a partial vacuum (low pressure region) at its center, which, in turn, pulls in the second stage diaphragm, increasing the flow of air and reducing the inhalation effort. The major difference, as the inventor contends, is that the vortex design can be more precisely set for greater control, than could a comparable venturi design.

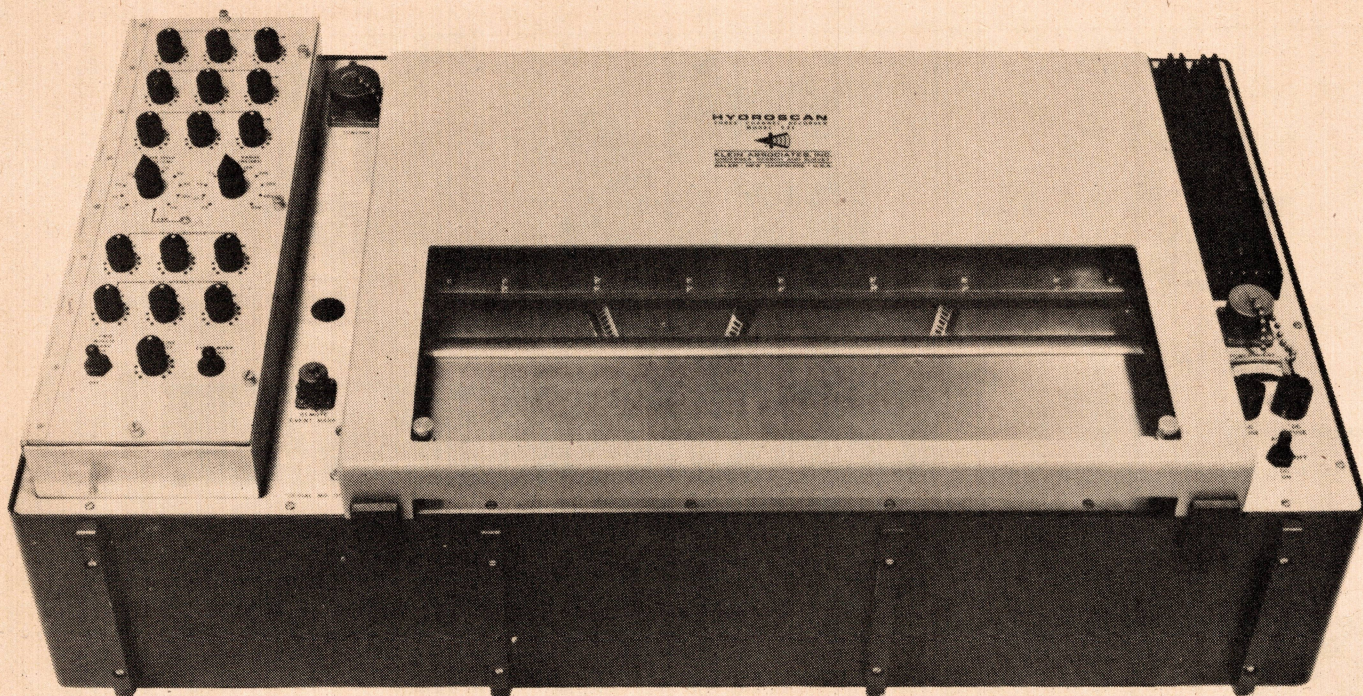
Although the MR 12-II and the MR 12-III second stages still share some things in common, several worthwhile improvements have been made in the new model. Externally, the front half of the case has been changed to Du Pont Delrin, a tough, impact and corrosion resistant plastic, which is lighter in weight and less prone to denting and scratching than was the earlier chrome plated brass version. Internally, the changes involved upgrading the second stage diaphragm, exhaust valve and mouthpiece to silicone rubber. This was done to promote better sensitivity to pressure changes; require less exhalation resistance; and provide more comfort to the teeth and jaw (respectively). In addition, the silicone rubber has more resistance to the deteriorating effects of the environment than neoprene.

The MR 12-III, overall, is quite conventional in design, except for the unique bypass tube arrangement—and it requires no unusual maintenance nor special procedures in use. In fact, about the only maintenance recommended is cleaning and replacing the dust cap, rinsing in fresh water, and drying after use—and an annual service/inspection by an authorized AMF Mares service center. Among the instructions in a sheet packed with the new regulator is an interesting suggestion: After attaching the first stage to the tank, depress the purge before turning on the air. This is not a requirement, nor is it peculiar to this regulator—it is, however, a good suggestion for any regulator, as this precaution will help reduce the initial shock the high pressure valve experiences when the air is first applied.

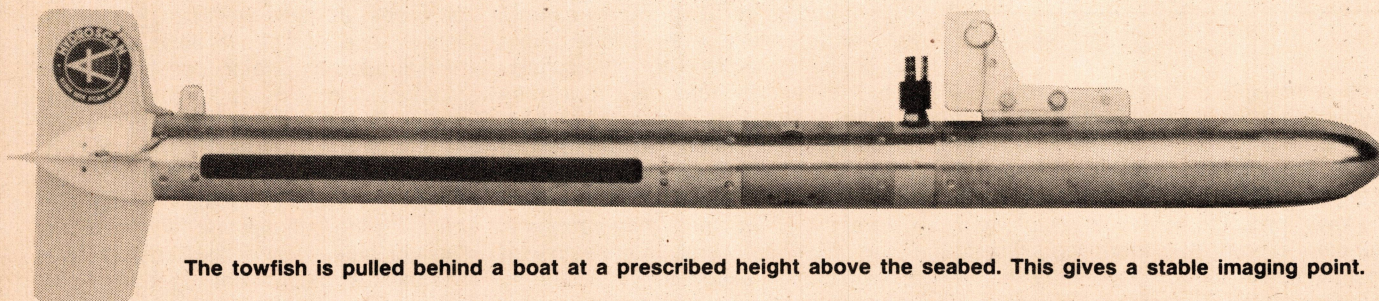
In my own evaluation, the MR 12-III

performed very well. It could supply air with only a slight effort, over the range of demands from sipping to gross inhalations. Exhalation effort was also reasonably low. Breathing characteristics changed a little for different positions and attitudes underwater, but always in accordance with the Laws of Nature (especially as they apply to a single hose regulator). While looking horizontally, and exhaling, only a few bubbles would rise within the central field of view (probably because the exhaust tee is so long), and all of these would disappear when I tilted my head down slightly. Freeflowing was typical for a sensitive regulator: It would freeflow if the mouthpiece were turned upward while the second stage was full of air or if the purge were depressed long enough to get a good flow going. But, in all cases, the flow would stop once the mouthpiece was turned down, or the inside flooded with water. Despite the manufacturer's instructions for clearing (looking up at a 45 degree angle and exhaling), I found this unit easy enough to clear while looking horizontally. The mouthpiece was very comfortable (owing, perhaps, to the soft silicone rubber and/or the uniquely shaped bite tabs), as was the exhaust tee, which hugged my chin firmly. After trying about every possible position I discovered only one idiosyncrasy: A trickle of water entered when I stood on my head. Otherwise the MR 12-III was completely dry.

An owner of two dive shops in Southern California has a high regard for the MR 12-II regulators in his rental programs: After about five years experience with them he has found all to be very easy breathing and quite low in maintenance. Considering this recommendation, the admirable record established by the MR 12-II, the improvements made in the MR 12-III, my own evaluation, and a retail price of \$240 (U.S.), the new AMF Mares MR 12-III should continue the success of its predecessors, and be well suited for any sport diving activity.



HYDROSCAN



The towfish is pulled behind a boat at a prescribed height above the seabed. This gives a stable imaging point.

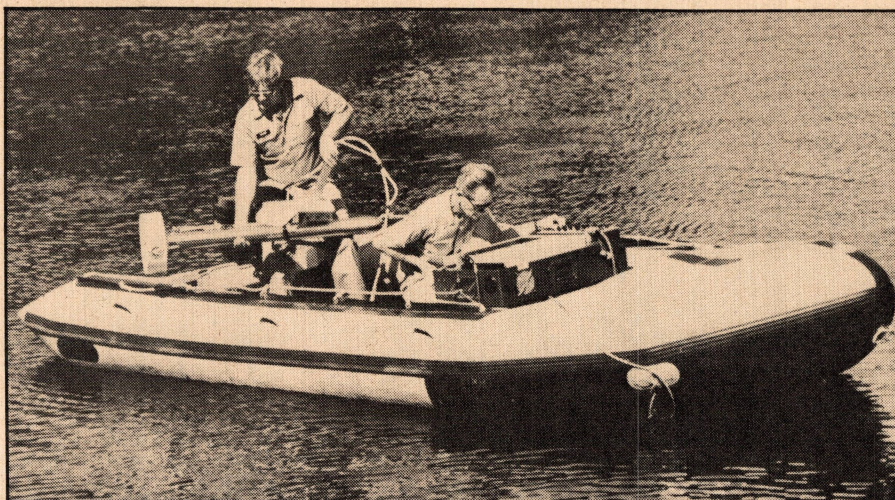
When the recording depth sounder first came into commercial use over three decades ago, the treasure hunter found it a boon to his efforts. Sonar systems have made tremendous strides in imaging the sea bottom, objects resting on it and objects buried beneath it. The state-of-the-art in sonar imaging is the Hydroscan sidescan sonar manufactured by Klein Associates, Inc. in Salem, New Hampshire.

Spearheading the original design of sidescan sonar in the early 1960's, Martin Klein started Klein Associates in 1968. A progressive and forward looking

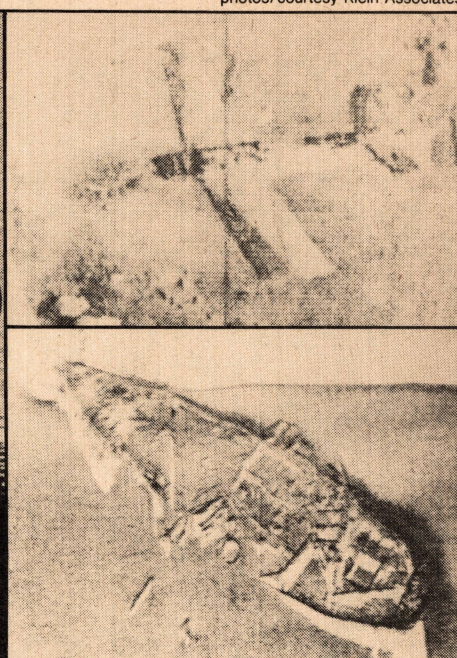
acoustics engineer, Klein refined his original design, resulting in a highly versatile search tool for use by archaeologists, treasure hunters, military organizations, and search and rescue groups. In shipwreck location alone, the Hydroscan has an impressive record. Its recent successes include the *H.M.S. Breadalbane* in the high Arctic, the Vanderbilt's private ship lost in 1891, and the *H.M.S. Edinburgh* with her five tons of gold.

In basic principle, the Hydroscan sidescan sonar utilizes a series of very short high frequency acoustic pulses beamed across the seabed with reflec-

tions received back at the transducer to produce an image that approaches aerial photography in detail. The same principle applies to the Sub-Bottom Profiler with the difference that the pulses are beamed directly down into the seabed producing a cross section of the bottom. While one hard copy of these images is being made in real time, all of the data can be simultaneously tape recorded, allowing reexamination and special image processing at a later time if desired. Being portable and lightweight, the Hydroscan can be used from a small inflatable boat or fitted to a larger survey vessel. Four components



Opposite page: The sonar recorder contains gain and tuning controls as well as the printing mechanism and paper. Above: The Hydroskan is portable and can be operated from a small inflatable or a larger survey vessel. Above right: A sonograph of a small airplane recorded by the Klein 500 kHz very high resolution side-scan sonar system. Right: Shipwreck in 25 meters of water, 500 kHz system.



Sidescan Sonar

State-of-the-art Sonar Images

BY JOHN P. FISH

make up the basic system commonly used for shipwreck search. For power, the 24 volts required can be supplied from two 12 volt car batteries. On a large vessel, 110 volt AC current can be used thanks to a built-in converter. The entire recording unit, which produces the 19 inch wide hard copy records, weighs 42 kilograms (about 92 pounds) and contains gain and tuning controls as well as the printing mechanism and paper. The component containing the transducers and signal conditioning circuitry, called a towfish, is towed underwater. Towing the transducer array instead of hull mounting it keeps the system portable and more importantly, decouples the towfish from the ship's motion and puts the sonar near the bottom for a high resolution image. This provides a stable imaging point for the final record of the seabottom. The fourth component is a lightweight, Kevlar reinforced electromechanical tow cable which connects the towfish to the record-

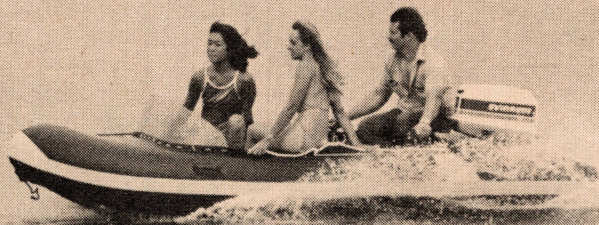
er. The system is designed to be portable and can be mobilized to vessels of almost any size very quickly.

The Hydroskan can be adapted to different applications. For this the user simply changes the towfish. For large shipwreck search, the 50 kHz long range towfish will effectively image a swath of ocean bottom one km in width. For smaller targets, the high resolution 100 kHz towfish is used, giving a total swath width of up to 300-400 meters. In searching for very small objects or for extremely high resolution imaging, the 500 kHz towfish is used. Frequently, shipwreck hunters will use the 500 kHz to define the detail of a particular wreck after locating it with a lower frequency, longer range sonar such as the 100 or 50 kHz.

During use the towfish is towed behind the support boat at a prescribed height above the seabed. This height will vary with depth, bottom terrain, and sea state. In the boat the operator tunes and moni-

tors the image being drawn in front of him with a careful eye for targets. Navigational information such as Loran coordinates can either be hand written on the record or automatically printed by the recorder. When a target is located, a close-up view can be obtained by repeated passes on a shorter range selection. Frequently this will supply the user with the target's length, width and height.

Used by many of the major treasure hunters active in the northeastern United States, Caribbean, and South America, the Hydroskan is a key survey tool for a serious search effort. Although it is a fairly high priced tool with basic systems starting at just over \$34,000, the quality and high resolution eliminate both down time and inaccurate target identification. The serious shipwreck hunter realizes that with even a modest find, the Hydroskan can pay for itself many times over. For information contact: Klein Associates, Inc., Klein Dr., Salem, NH 03079. 



HUTCHINSON^{HM} 380

RUGGED, RELIABLE AND MANEUVERABLE

TEXT AND PHOTOGRAPHY BY ERIC HANAUER

Testing the Hutchinson HM 380 was just like seeing an old friend again after a long absence. My earliest experience with inflatable boats was on an old Hutchinson Nautisport over ten years ago. That little 12 and a half foot boat was a magic carpet to dive adventure for me and my roommates on Balboa Island, CA. We would overload it with four or more divers, underpower it with a five horsepower engine, and set off undaunted for the waters off Scotchman's Cove. As we made our way through Newport Harbor at full throttle, the Sunday sailors passing us must have thought we were crazy to trust our lives to that rubber raft. We, in turn, maintained that were having a lot more fun than they were.

The two and a half mile trip from the harbor entrance to Scotchman's Cove took 45 minutes in calm water, allowing lots of time for swapping oft-told diving tales. Two dives usually turned out to be an all day affair.

But, it was in the old Nautisport that we discovered the deep reefs off Scotchman's Cove, the wreck of a World War II Corsair, and many other diving delights. It helped us explore Baja and the Sea of Cortez in the first years after the new road was built. The day it was stolen out of the

front yard was one of the darkest in our diving careers.

That's why testing the new version of the Nautisport was such a nostalgia trip. The Hutchinson name had been gone from the American inflatable boat scene for several years. They had never really established an effective distributor or dealer network in the old days, and weren't competitive in the limited market of the time. When sales of inflatables started picking up in this country, the company decided to give it another try, but this time they are doing it right.

Hutchinson is a French company, and it has been manufacturing rubber accessories for the automobile and aircraft industries for over 60 years. For the last 20 it has been making inflatable boats, which have a reputation for ruggedness, reliability and good handling.

Today's Hutchinsons come in two series: the standard series S and the heavy duty series HM. They range in length from 10 to 18 feet. The S boats are basic, stripped down models, but the factory pulls out all the stops in terms of reinforcement and features for the HM's. The object of our attention this month is the HM 380, the updated version of the old Nautisport. The new boat looks a lot pret-

tier. It's dressed in black with bright yellow trim. Its length is 3.8 meters, which translates to twelve and a half feet. The basic design is unchanged from the Nautisport, but there have been considerable detail improvements.

There is no sense messing around with something successful, and the old boat was a good one. Its outstanding ride characteristics are the result of a wooden keel and unique seam construction. Although the keel adds weight and takes time to assemble, it improves directional stability and minimizes bounce in chop when compared to an inflatable keel. Rigidity is further enhanced by the seam structure, which runs the length of the tubes instead of across them. In conventional inflatable design, the seams can be a flex point on the pontoons, but that is prevented by longitudinal seams. The HM 380 has four chambers, divided by diagonal baffles which have a three and one-half foot overlap. If one chamber loses air, the adjacent one can expand to fill much of the space owing to this baffle construction. Other boats have vertical, cone shaped baffles which do not allow as much air displacement. The boat is made of 840 denier nylon, coated with neoprene and hypalon.

All sport boats in the HM series, with the exception of the two smallest models, now have aluminum floorboards and stringers. They are resistant to scratches and dings from tanks and weightbelts, require less maintenance than wooden boards, and are stronger and lighter.

The valves of the new boat are made of a plastic material instead of the chromed brass of the old one. No doubt that is an economy move, but the new valves are better than the ones they replaced. A wrench built into the cap opens the valve for rapid inflation or deflation. There are no metal parts to corrode, and if a valve needs to be replaced the owner merely unscrews the old body and puts in a new one. The only suggested improvement would be a built-in overpressure device.

HUTCHINSON HM 380

Length	12' 6"
Width.....	5' 7"
Tube diameter.....	18"
Number of chambers.....	4
Keel.....	Wood, two pieces
Floorboards	Aluminum
Weight	163 lbs.
Payload	1609 lbs.
Passengers	5 or 3 to 4 divers
Horsepower.....	40 hp max.
Price.....	\$2,550

All HM series sportboats come with a fixed bowdodger and a removable windscreen. The relatively short covered area maximizes usable interior space. The windscreen is a two piece affair, made of Lexan, attached by a toggle and elastic cord arrangement. It looks flimsy, but actually holds up quite well and does an effective job of protecting the passengers from spray. Underneath the bowdodger is a large storage bag designed to keep objects dry. Another small bag is located at the transom for tool storage. Both are standard equipment, but any tools stored in the stern bag had better be rustproof.

The HM 380's standard equipment list is long and impressive. Jointed aluminum oars are included, which fit into stainless steel oarlocks. Unfortunately, the oars mount on the inboard quadrant of the pontoons and encroach on passenger seating space. If passengers are sitting on the pontoons, the oars will have to be stowed in the boat.

A one-way drain is provided at the base of the transom. Its plug is located inside the boat, which makes a lot of sense. Too many manufacturers mount them outside, which makes them difficult to remove and replace.

For our test cruise, we launched the

boat in Marina del Rey, CA, loaded with two sets of dive gear and four persons. Power was provided by a 25 horsepower Evinrude engine. Outside the harbor, it brought us up on a plane when opened to full throttle, then kept it up when throttled back. Spray was effectively deflected by the windshield as the wooden keel cut effectively through the light chop. It held well in sharp turns with a minimum of skidding. Crossing a large boat's wake caused bounce at full throttle, but that's something you do only on a test run. Throttled back a bit, the HM 380 handled the wake with no problems.

As it comes from the factory, the HM 380 is just about ready to go diving. It will accept an engine up to 40 horsepower, but a 25 is fine for all but the most heavy duty applications. The boat is small enough to be carried on top of a car or small van, but will carry three to four divers with comparative ease and comfort. A worthy successor to its predecessors, the HM 380 retails for \$2,550 at your Hutchinson dealer. 

The HM 380 is small enough to be carried on top of a car, but will carry three to four divers. It has a bowdodger and removable windscreen.



HENDERSON'S NEW DRYSUIT VALVES



BUOYANCY AT THE TOUCH OF A BUTTON

BY BONNIE J. CARDONE

Deflating a Henderson drysuit used to take an entire arm as well as a certain body position. No more. The corrugated hose has been replaced with two valves: One inflates and one deflates.

If you're not a drysuit wearer you may not understand the importance of inflation and deflation. But, when you go into the water with a properly fitting drysuit there will be a lot of air inside it that must be vented before you can descend. If you don't let the air out you will end up flailing about on the surface, very possibly with your feet and legs in the air and your head underwater!

Underwater, you add air to the suit to keep warm, adjust your buoyancy and lessen the pressure of the suit on your body. If you fail to vent this air from the suit while ascending, you will find yourself rocketing uncontrolled to the surface. In most suits deflation is a one-handed affair: You hold the corrugated hose over your head while pushing the button on the end of it. To make sure as much air as possible reaches the valve, you assume a chest toward the surface position, arching your back slightly. Water pressure on the suit forces the air upward and out of the hose. If you began your ascent before venting the air from the suit, finding and using the corrugated hose quickly could be very difficult.

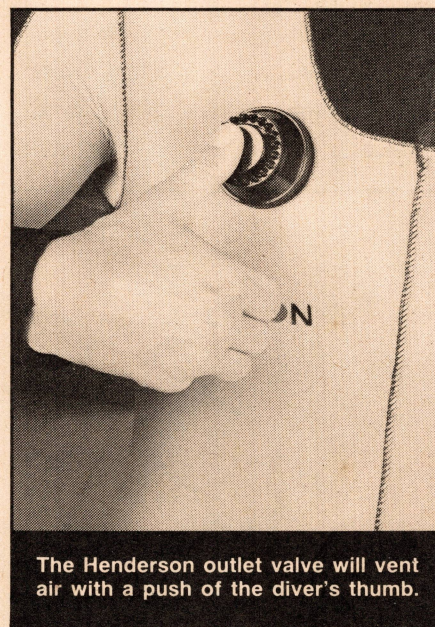
With Henderson's new outlet valve, you need only assume a vertical position

and press the button on the right side of the suit with your thumb to vent air. The air escapes quickly, and, you don't need an entire hand, just one digit. Both Henderson valves are high on the torso of the suit, out of the way of straps, easy to reach and in the part of the suit in which air collects when you are vertical.

Inflating drysuits is easy as long as you have a power inflator. Without one of these you have to remove your regulator from your mouth and blow into the corrugated hose. Both the oral and power inflation methods present one problem: Cold water collects in the corrugated hose. Thus, when you add air to the suit you add cold water as well. The new Henderson inlet valve is a button on the left side of the suit to which the inflator hose attaches. Simply press the button with your thumb to get air—you get only air, no water.

Do these new valves mean your drysuit will stay completely dry? Well, no. You will get less water inside your suit than you got with the corrugated hose, but you will still get just a little when you deflate the suit. This is because even though the outlet is a one-way valve, it still admits a very tiny amount of water, especially if it is held down for a long period of time.

The new Henderson valves are made of high-impact Cylolac ABS plastic with stainless steel springs. If you have an older Henderson suit and wish to upgrade it



The Henderson outlet valve will vent air with a push of the diver's thumb.

with the new valves, simply return it to your Henderson dealer. The new valves can be installed for about \$75.

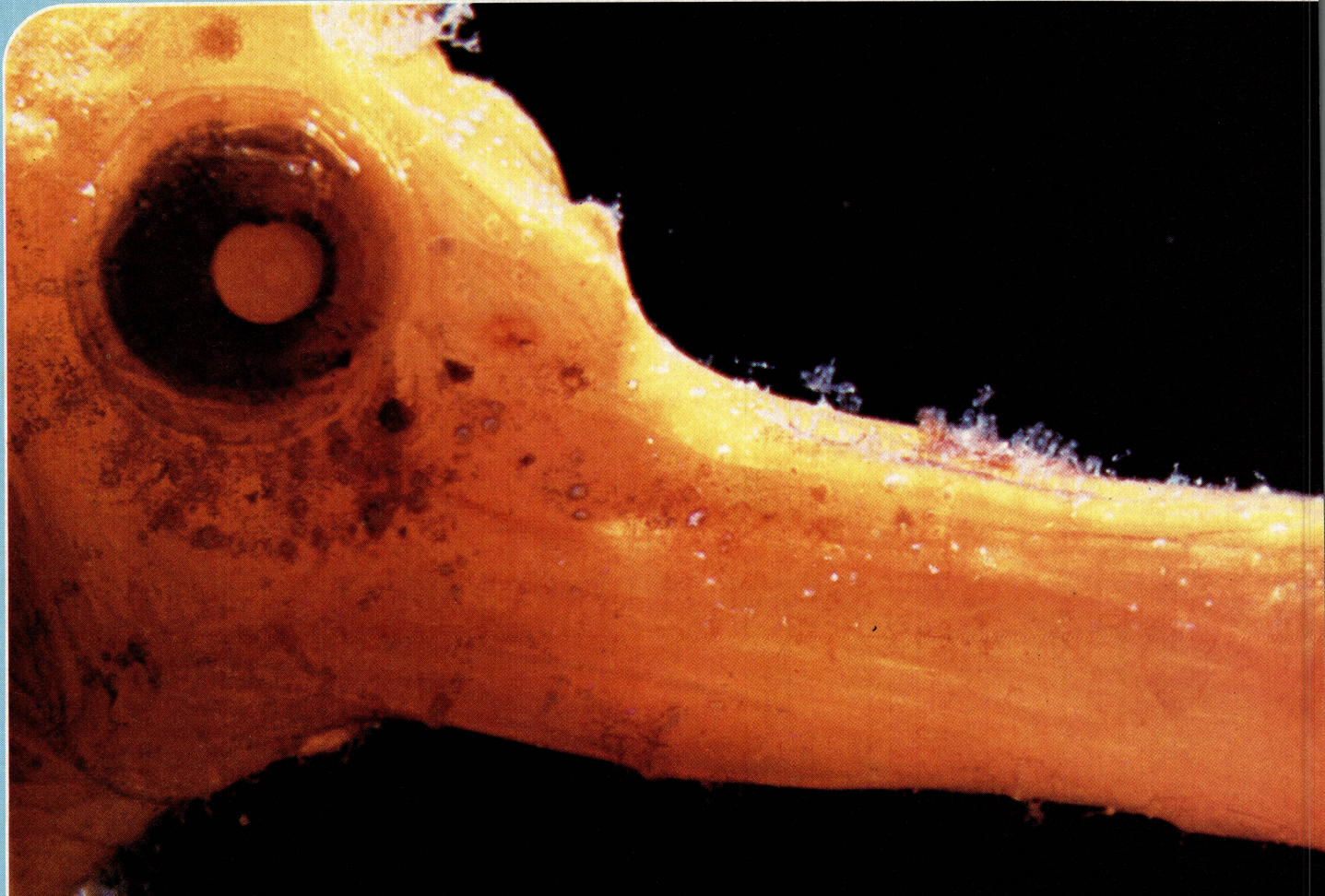
The basic Henderson suit, with attached hood and booties, knee pads and inflator system with hose is \$483.95. For more information contact: Henderson Aquatics, Buck and Sassafras Streets, Millville, New Jersey 08332. 

UNITED STATES

Virgin Islands

SPECIAL SUPPLEMENT





Virgin Islands

UNITED STATES

A Vacation Paradise That Offers More Than Just Good Diving

By Bill Gleason

PHOTOGRAPHY BY GERI MURPHY

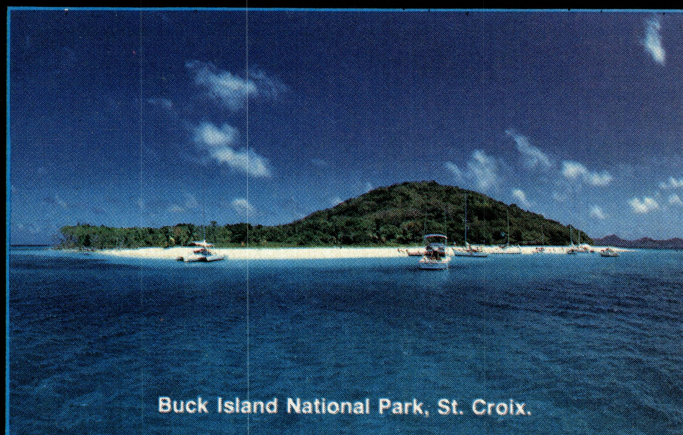
Each year, more than one million tourists travel to the U.S. Virgin Islands. And, more and more of the islands' travelers are divers. Throughout the U.S. Virgins the variety of dive opportunities seems to be endless. There are wall dives, cave dives, tunnel dives, sloping reef dives, night dives, bottle dives, pinnacle dives, wreck dives, and pier dives. With well over 200 dive sites and new ones being found and charted every month, there seems to be an inexhaustible challenge for new and repeat visitors.

The same variety found underwater is also found topside. There is a wide choice of hotel rooms, ranging from small, intimate guest houses to large, full

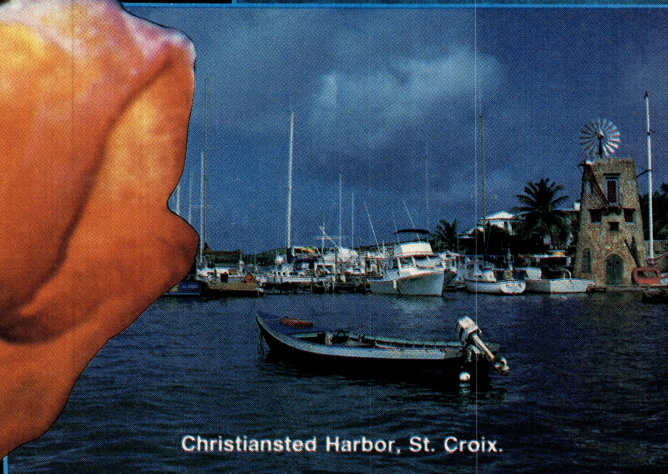
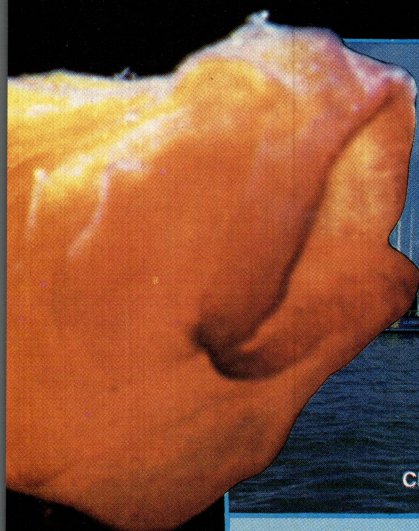
service hotels that provide standards of service and excellence usually found only in large, well traveled cities. These hotels can be found amidst the hustle and bustle of downtown Charlotte Amalie in St. Thomas or in the quiet rolling hills of St. Croix. Ethnic restaurants abound, and anything from West Indian fish to classic French dishes are served. Most hotels welcome visitors for any meals.

The U.S.V.I. is also recognized as one of the watersports capitals of the world. The tradewinds blow constantly during summer and winter months providing excellent sailing and boardsailing conditions. While sailing has long been established as a major attraction for the islands

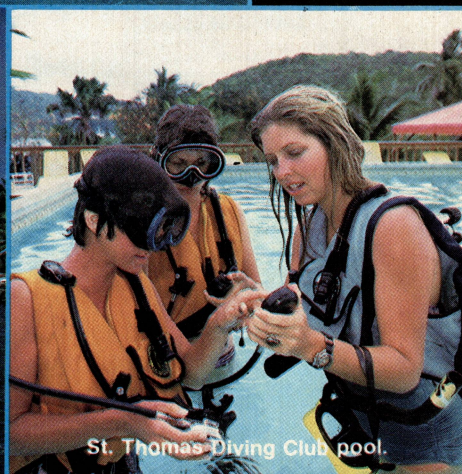
with plenty of boats available for bare-boat charters, boardsailing is making inroads in tourist travel. Deep sea angling for pelagic fish is also popular and the local restaurants' steady supply of native fish attests to the abundance of food fish in these waters. There are snorkeling trips for those just learning about the sea, a complex called Coral World that's an aquarium-like structure that takes visitors beneath the sea without even the aid of a snorkel, and last, but not least, if you just feel like lying on a beach, there are over 100 to choose from. Magen's Bay, on the north side of St. Thomas, is consistently referred to by visitors as one of the most beautiful beaches in the world.



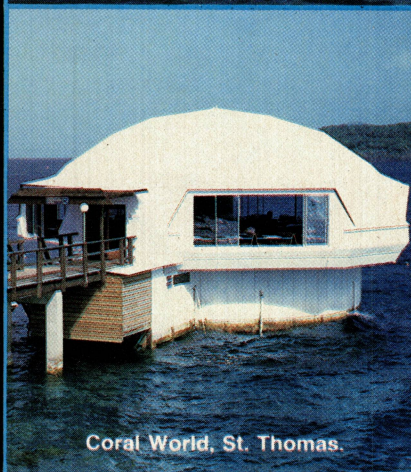
Buck Island National Park, St. Croix.



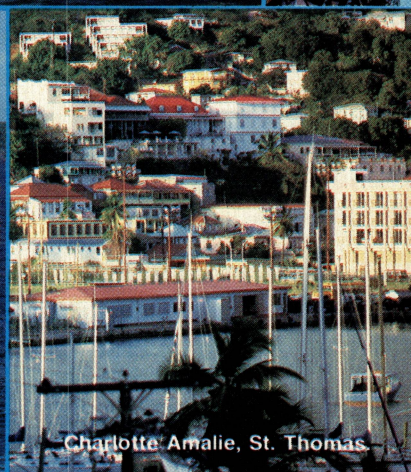
Christiansted Harbor, St. Croix.



St. Thomas Diving Club pool.



Coral World, St. Thomas.

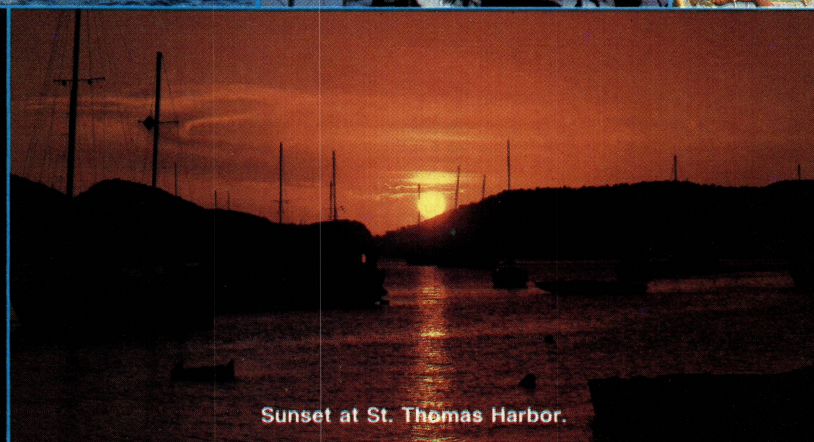


Charlotte Amalie, St. Thomas.



Bolongo Bay, St. Thomas.

Above: a golden sea horse photographed at the Frederiksted Pier on St. Croix. The United States Virgin Islands is recognized as one of the watersports capitals of the world, with a variety of activities available onshore and offshore St. Thomas, St. John and St. Croix.



Sunset at St. Thomas Harbor.

Virgin Islands

Five hundred million years ago, the Virgin Islands was a solid land mass that extended from continental North America. This land mass lost its foundation and sank beneath the sea, leaving only its highest peaks above the Atlantic and Caribbean Oceans. The islands continued to rise slowly above the seas, forced by volcanic pressure under the entire Lesser Antilles chain. The islands still continue to rise slowly from the seafloor, allowing the speculation that someday, far into the future, our shallow dives in the Virgin Islands might be guided tours on the shore.

The first settlers on the islands were probably Arawak Indians, a peace loving tribe that was constantly being harassed by its cannibalistic neighbors, the Carib Indians. Christopher Columbus found evidence of both cultures when he discovered the Virgin Islands in 1493. The islands were subsequently claimed by English, Dutch, French and Spanish governments. The islands were generally governed by the Danes until the United States bought them in 1917 for \$25 million. The United States suspected that German forces intended to seize the islands and turn them into submarine bases. Even today, U.S. Navy ships are a common sight in St. Thomas Harbor.

LOCATION

The U.S.V.I. is composed of 50 islands and cays; part of a volcanic ridge that separates the Atlantic Ocean from the Caribbean Sea. The three inhabited islands of the Virgin Islands are St. Thomas (32 square miles, 45,000 population), the largest, St. Croix, (84 square miles, 50,000 population) and St. John (28 square miles, 2500 population). The islands are southeast of Puerto Rico and are part of the island chain known as the Lesser Antilles. They are approximately 1490 miles from New York and 1000 miles southeast of Miami.

WEATHER

There is little fluctuation between winter and summer temperatures in the Virgins. The average mean temperature in winter is 77° F and during the summer it is 82° F. The ever present tradewinds assure both excellent sailing and a cooling breeze during summer days. The islands receive a moderate amount (48 inches annual) of rainfall in brief showers that

are usually replaced by sunshine quickly.

Water temperatures make snorkeling very comfortable in a T-shirt or bathing suit. Plenty of divers use only T-shirts if they are diving once a day. If you are making more than one dive a day or diving several days in a row, you'll probably be more comfortable with a shorty wet-suit or your standard warm water wear.

PERKS

In contrast to travel to more remote destinations, the U.S. Virgin Islands enjoy quite a few benefits, or perks, that visiting divers will appreciate. Among them:

- 1.) English is the universally spoken language.
- 2.) U.S. currency and credit cards are the medium of exchange.
- 3.) The U.S. Postal System is used.
- 4.) The continental U.S. is a direct dial phone call.
- 5.) Island transportation is easy—major car rental companies are represented in St. Thomas and St. Croix. There is public bus service, private hotel buses, taxis and even a water taxi.
- 6.) Immigration: Proof of American citizenship (driver's license or voter's registration card) is all that's required for exit and entry. Note: if travel to the British Virgin Islands is planned, please bring your passport. This may include a trip to the wreck of the *Rhone* which requires that you clear British customs.
- 7.) The electricity is standard U.S. 120

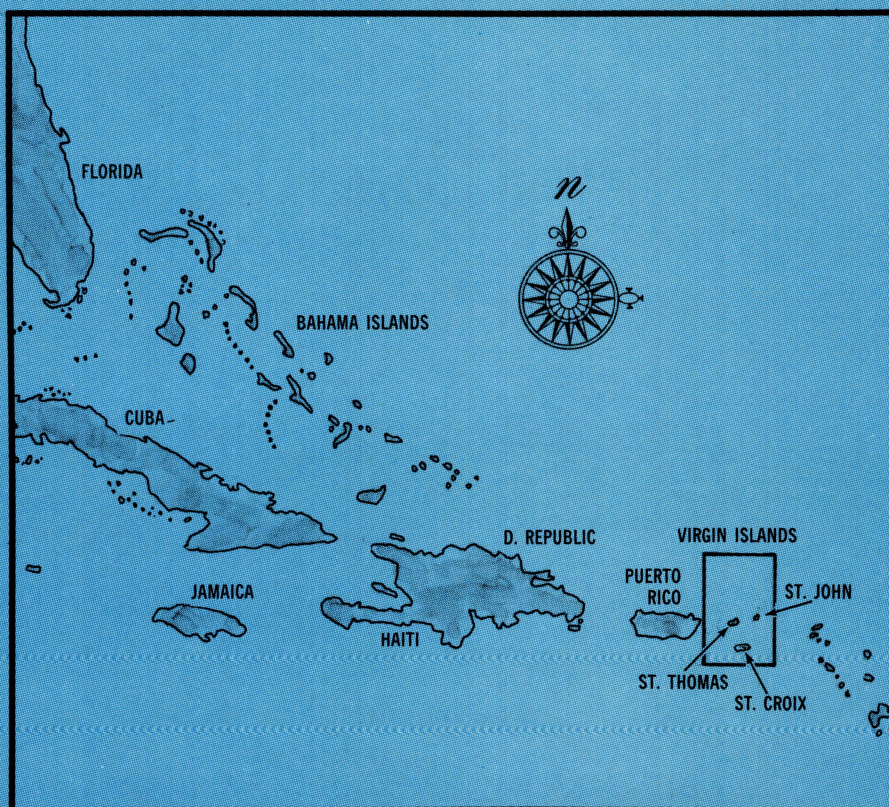
volt, 60 cycle. Your strobes and dive lights can be easily charged.

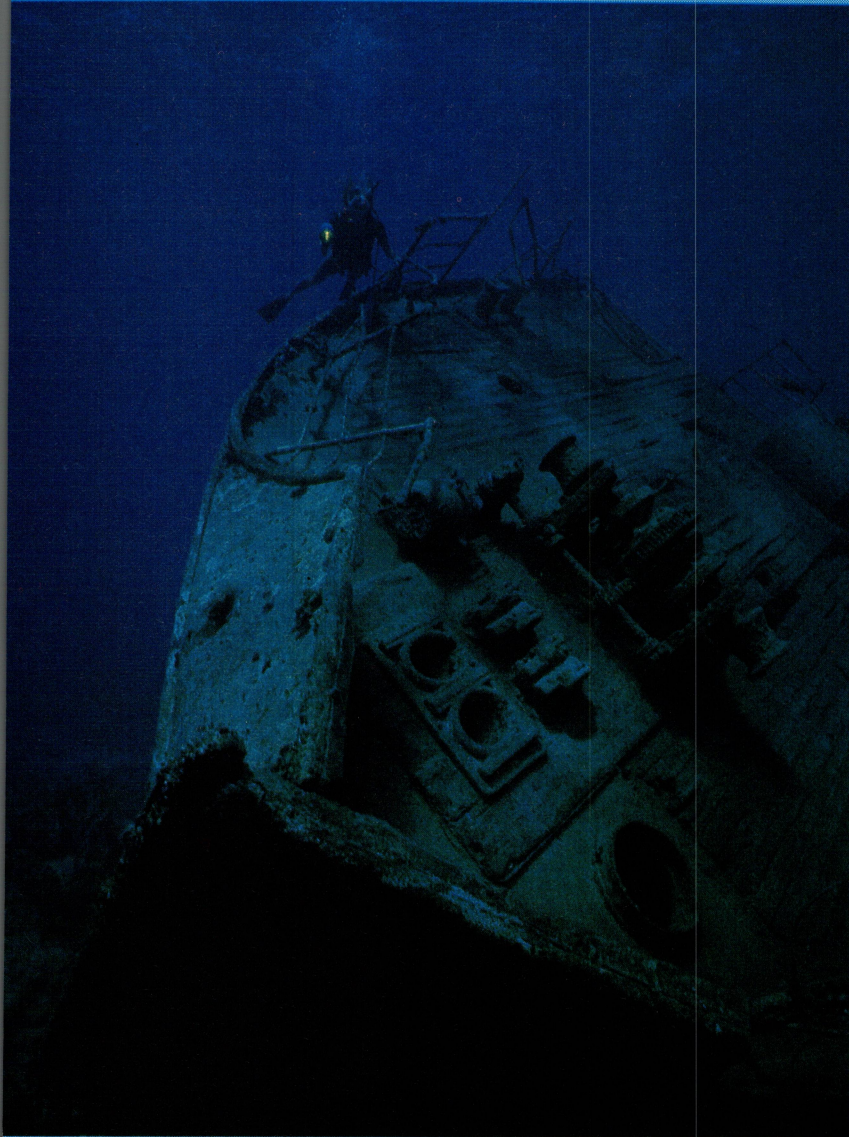
AIR TRAVEL

The U.S. Virgin Islands provides welcome relief to veteran Caribbean travelers who are used to arriving at their destinations well after the sun has gone down. The frequent nonstop flights on major airlines make New York a mere three and one-half hour trip and Miami only two and one-half hours away. This is direct service, available from Miami via Eastern Airlines and from New York via American Airlines.

The other option for traveling divers is to route themselves through San Juan, Puerto Rico. Eastern, American, Capitol, Delta, and Pan American all have service to San Juan. Once in San Juan, fly to the U.S. Virgins via Ocean Air, Coral Air, Aero Virgin Islands or Prinair. Each of these airlines offers many daily flights.

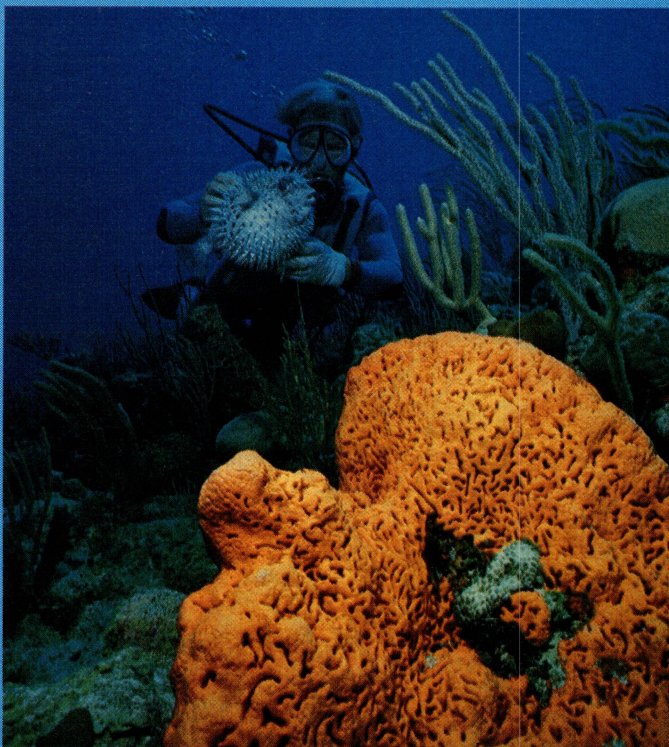
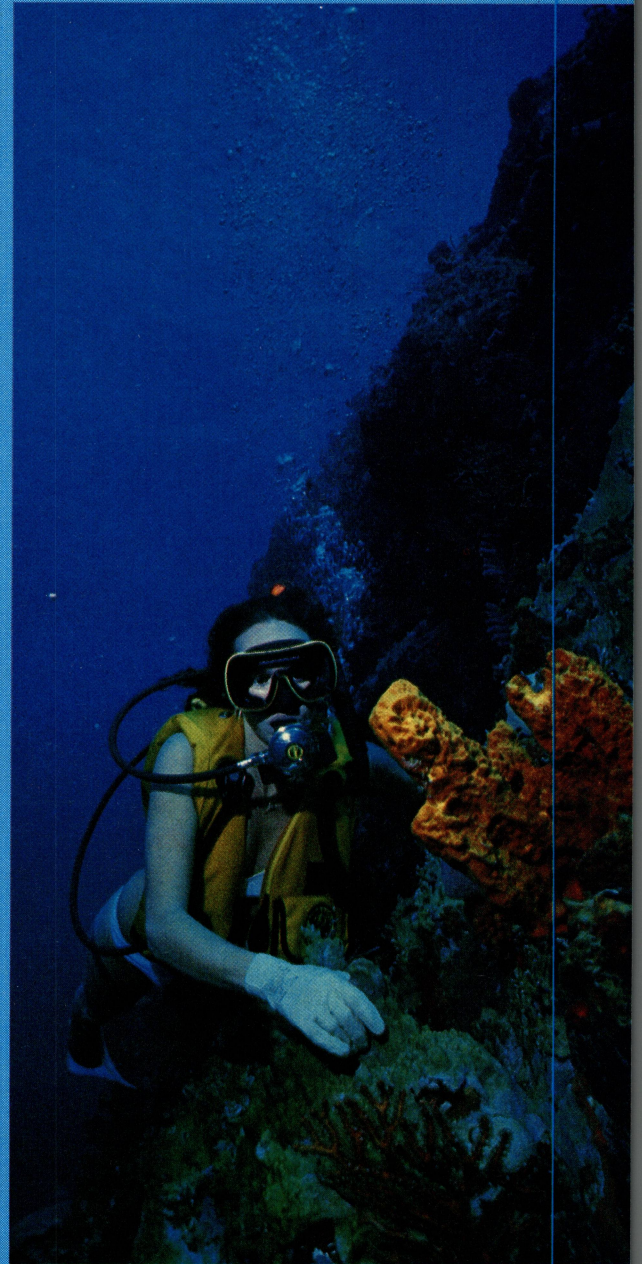
Once you've arrived in the Virgins, island hopping is easy. Sunaire, Coral Air and Aero Virgin Islands fly frequently between St. Thomas and St. Croix. In addition, downtown transportation service is available via a unique airline known as the Virgin Islands Seaplane Shuttle. The 15 passenger Grumman Mallards depart from Christiansted, Charlotte Amalie, and Cruz Bay. Travelers board the airplane on land and then taxi down a shallow ramp into the water where the actual take-offs and landings are made.





Cartanser Senior, St. Thomas.

Sail Rock, St. Thomas.



Green Cay Slope, St. Croix.



Photograph by Jim and Cathy Church

“Wrecks, caves, pinnacles, walls, colorful reefs, fish, and even seahorses— the U.S. Virgin Islands have it all.”

Jim and Cathy Church

“The Virgin Islands have a fantastic variety of excellent dive sites. And after the diving, the scenic views and beaches are magnificent, the historical sights are fascinating, the shopping opportunities are delightful.

“At night, the variety of restaurants and clubs will satisfy every taste and mood. And if you still have the energy to party, there’s live entertainment and dancing from steel bands and limbo to electric guitars and disco.”

United States Virgin Islands

St. Croix • St. John • St. Thomas

© 1983 United States Virgin Islands Division of Tourism, P.O. Box 471269, Miami, Florida 33152.

St. Thomas

phers to night dive in search of macro subjects; tubeworms, arrowcrabs, banded coral shrimp and dozens of other reef creatures make it an interesting and fascinating night dive.

REEF DIVING

St. Thomas, although only three miles wide and 13 miles long, is definitely the hub of tourism and commerce in the U.S.V.I. The capital city, Charlotte Amalie (Charlotte A-mahl'-Ya), surrounds a superb deep water harbor. This harbor is responsible for much of the cruise ship traffic that quickens the pulse of St. Thomas' tourist business. The city also plays host to the largest shopping center in the Caribbean. Visitors find Charlotte Amalie a unique blend of American commerce and West Indian culture.

ST. THOMAS DIVING

In keeping with the overall topside diversity that the island offers its visitors, St. Thomas has more than 100 dive sites that are regularly visited. Caves, tunnels, wrecks and reef dives play an important role in delivering excellent diving. Experienced divers may have overlooked St. Thomas in the past because it's long been known as a sailing and shopping destination. As the variety of diving attracts, St. Thomas should be included on any diver's must see list.

Most tour operators offer a package that enables a diver to dive as often as he/she likes. For example, the morning dive usually gets off around 9:00 or 9:30 and is a two tank trip. The afternoon dive, scheduled for around 2:00, is usually a single tank trip to a shallower (50 foot) site. Most operators will also offer a night dive either off the beach or by boat.

RESORT-CERTIFICATION DIVES

As a direct result of the large number of visitors that flock to the Virgin Islands via both plane and cruise ship, all dive operators on the island offer both resort and certification courses for visiting guests. Marv Ellis, for example, has been initiating hundreds of divers into the sport via his Virgin Islands Diving School. In addition to a full program for experienced divers, Virgin Island Diving Schools can get a new diver interested enough in diving in a morning or two to join an experienced certified diver and a divemaster on a shallow afternoon dive.

Coki Beach is one of the most popular beginning dive sites used by a variety of operators. In addition to a gentle beach entry and clear water conditions, the dive at Coki Beach has a very respectable reef that provides a fascinating introduction to the underwater world. The reef at Coki Beach is good enough for photogra-

Off the north shore of St. Thomas the divers onboard Gary Deering's 42 foot *Sea Trek* were suited up and ready to go. We started this dive at the center of Gary Deering's operations at Sapphire Beach Resort. The Watersports Center in the Sapphire Bay Marina provides safe anchorage for Gary Deering's fleet of four dive boats and several sailing vessels that are for charter.

At Frenchcap Cay, we explored a pinnacle that rises from about 110 feet on the ocean floor to about 150 feet above sea level. The portion above water is in the triangular shape made famous by the classic Frenchcap and that's how the dive site got its name. Actually, as Gary Deering explains, two or three different dives are possible at Frenchcap Cay and the one you dive is a matter of either weather conditions or preference.

Gary Deering, along with his instructor staff of Dennis Perry, Jeff Strickland, (both also U.S. Coast Guard licensed boat captains) and Pam Lowenhaupt (the manager of Watersports Center), all headed for the bottom of Frenchcap. We were diving the ledges, huge overhangs of rock and coral at 80 feet that are home to a variety of sea creatures.

Sea Trek is complemented by three other dive boats. There is a custom built 32 foot aluminum boat called *Stormy Petrel*, a 26 foot twin diesel *Argonaut*, and the 21 foot *Seabird*. All of Gary's boats are designed to carry about six divers. The emphasis at Watersports Center is on teaming divers up with other divers of the same experience, and then choosing dive sites that suit their ability. All of the Watersports Center staff members pride themselves on showing divers sea creatures and ocean life (like octopus, stone crabs and small moray eels) the divers might otherwise miss.

ST. THOMAS HOTELS CATERING TO DIVERS

Pineapple Beach Resort
Box 8267
St. Thomas, U.S.V.I. 00801
(809) 775-1510

Bolongo Bay Beach/Tennis Club
Box 7337
St. Thomas, U.S.V.I. 00801
(809) 775-1800

St. Thomas Diving Club/Villa Olga
Box 4976
St. Thomas, U.S.V.I. 00801
(809) 774-1376

The Island Beachcomber Hotel
Box 1618
St. Thomas, U.S.V.I. 00801
(809) 774-5250

Frenchman's Reef Beach Resort
Box 7100, Charlotte Amalie
St. Thomas, U.S.V.I. 00801
(809) 774-8500

Watergate Villas
Estate Bolongo Bay
St. Thomas, U.S.V.I. 00801
(809) 775-2270

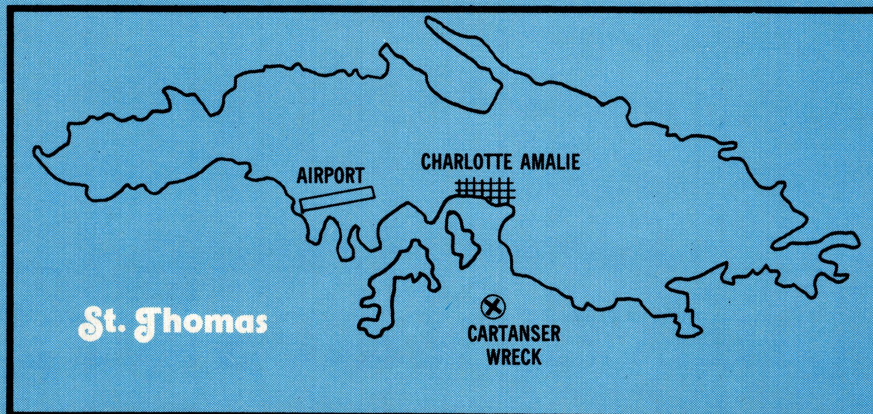
Bluebeard's Castle
Box 7480
St. Thomas, U.S.V.I. 00801
(809) 774-1600

Anchorage Beach Villas
Route 6
St. Thomas, U.S.V.I. 00801
(809) 775-3300

Limetree Beach
Box 7307
St. Thomas, U.S.V.I. 00801
(809) 774-4770

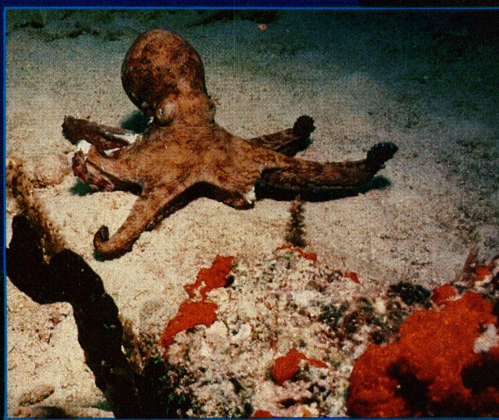
Sapphire Beach Resort
Box 8088
St. Thomas, U.S.V.I. 00801
(809) 775-1000

Point Pleasant
Estate Smith Bay #4
St. Thomas, U.S.V.I. 00801
(809) 775-3495





Above: Sheer walls at Frenchcap Cay, St. Thomas. Left: Raspberry tunicates at Thatch Cay, St. Thomas. Below: Octopus at Little St. James.



photo/Bill Gleason



...invites you to an
8 day/7 night vacation at
two of St. Thomas' finest
beachfront resorts, one an outstanding hotel,
the other a luxury condominium

WATERGATE VILLAS

ST. THOMAS, U.S. VIRGIN ISLANDS

A luxury beachfront condominium with 2-bedroom suites including fully equipped kitchens, two swimming pools, tennis courts, watersports, golf nearby. Restaurant, or light snacks and drinks at the beach bar. Only 15 minutes from Charlotte Amalie shopping and nightlife. Adjacent to dive starting point.



8 DAYS/7 NIGHTS

Effective April 16-December 14, 1983

DIVER NON-DIVER

\$409 \$159

per person, party of 4 sharing 2-bedroom suite
Not included: Room Tax of 5% and 10% Surcharge.

UNLIMITED DIVE PACKAGE INCLUDES

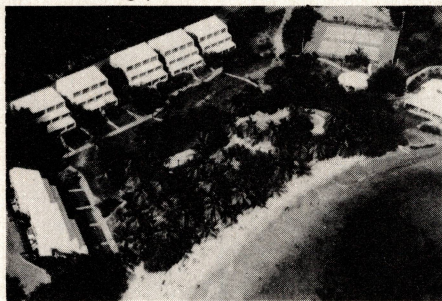
- Air-conditioned luxury 2-bedroom suite with fully equipped kitchen.
- Unlimited Dive Pass.
- Welcome Cocktail.
- Bottle of native rum.
- Use of tennis courts.
- Chaise lounges at pool.

Winter 1982-83 rates available upon request.

Limetree Beach Hotel

ST. THOMAS, U.S. VIRGIN ISLANDS

Renowned as having the best hotel beach on St. Thomas. A newly redecorated complete vacation resort with pool, lighted tennis courts, watersports, golf nearby. Enjoy fine dining, intimate lounges, music, dancing and entertainment. And duty-free shopping in Charlotte Amalie 10 minutes away. 5 minutes from dive starting point.



8 DAYS/7 NIGHTS

Effective April 17-December 18, 1983

DIVER NON-DIVER

\$529 \$279

per person double occupancy
Not included: Room Tax of 5%.

UNLIMITED DIVE PACKAGE INCLUDES

- Air-conditioned beachfront accommodations.
- Unlimited Dive Pass.
- Welcome Rum Cocktail.
- Manager's Cocktail Party (Monday).
- Use of tennis courts.
- Weekly tennis clinic.
- Complete entertainment program.
- Chaise lounges at pool and beach.

Winter 1982-83 rates available upon request.



UNLIMITED DIVE PASS

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use your dive pass on all 4 of our dive boats, including the 68-foot Mohawk II, the 40-foot Goldilocks or Dive I and Dive II, leaving from 3 separate docks.

FOR INFORMATION AND RESERVATIONS CONTACT

HTR Hotel & Travel Resources, Inc. 800-221-4588 / 212-355-6605 in N.Y. State

For example, while diving off *Argonaut* at Little St. James the following day, Jeff Strickland spied an octopus and brought him gently out of his hole. We were shocked to see that it had only six of its eight legs. In all likelihood the octopus was a victim of a moray eel. We placed the octopus back into its hole, in hope that it would survive so that the next divers who will visit get a chance to see it.

Other reef and ledge dives followed a similar profile on the north side of the island. There are many rock cays on the side of St. Thomas and for each one that breaks the surface it seems that there are three or four submerged pinnacles nearby. At Carval Rock I dove with Captain Armando Jenik aboard *Goldilocks*, a 42 foot, fully equipped dive boat used exclusively by the St. Thomas Diving Club at Pineapple Beach. This club is managed by instructor Diana Backus and provides access to the exciting dives between St. Thomas and St. John.

Armando Jenik is an accomplished underwater photographer and cinematographer. He is happy to help and many can learn from his expertise in the water and with marine creatures. Jenik has dived extensively with whales and other marine mammals and has been involved with right whales in Patagonia. He has a unique vision of the sea.

Dave Fredabaugh of Caribbean Divers has a 21 foot Bertram named *Different Drummer*. After diving with Dave, I think *Different Drummer* is a lot more than the name of the boat. It probably represents Dave's philosophy about sharing diving with other people. He keeps his groups small (four people for a two tank dive) and explores the reef slowly with his dive guests. At Congo Cay Dave led us on a magical tour of a sloping drop-off. We stopped to admire a coral window, an overgrowth that looks like a large port-hole. It's nearly wide enough for a diver to swim through. The dive itself at Congo Cay is a good one with lots of sightseeing, good macro photography and always a chance of seeing eagle rays and barracuda if you explore the deeper portions of the dive. But the real key to the dive is to just let yourself be shown the sights by a veteran Caribbean dive-master. Dave Fredabaugh knows his way around more than 40 dive sites in the St. Thomas/St. John area, and he is willing to spend some time showing you each and every one of them.

TUNNEL DIVING

The volcanic upheaval that is responsible for the Virgin Islands has left its mark below the surface of the sea as well. There are quite a few tunnel dives to be made directly off St. Thomas. They are usually short tunnels and caves and you can usually see your exit or entrance at all times during the dive. Pam Lowenhaupt and Jeff Strickland, along with Gary Deering from Watersports Center

circle #117 on Reader Service Card

St. Thomas Diving Club

...invites you to

bolongo bay
BEACH AND TENNIS CLUB

ST. THOMAS, U.S. VIRGIN ISLANDS

Look for family fun and sun drenched days at Bolongo Bay, a quiet tropical seaside haven. Each room is equipped with efficiencies and an outdoor barbeque area. Activities included in your room rate are an introductory scuba lesson, sunfish sailing, tennis and a daysail aboard the Ho-Tei. For the certified diver, Bolongo Bay offers a full diving schedule and convenient connections to dive centers.

UNLIMITED DIVE PASS...

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use your dive pass on all 4 of our dive boats including the 68 foot Super Boat Mohawk II located at Villa Olga, the 40 foot Goldilocks at Pineapple Beach Resort and Bolongo Bay's own Diver II. So come to the St. Thomas Diving Club and dive the Atlantic and Caribbean waters, the U.S. and British Virgin Islands.



You'll enjoy diving on Bolongo Bay's own Diver II (above) as well as the 68 foot Super Boat Mohawk II and 40 foot Goldilocks.

8 Days/7 Nights

Unlimited Diving	\$608.
Non-diver	\$308.
Per person. Double occupancy.	

Learn To Dive - 8 Days/7 Nights	\$558.
PADI Open Water Certification.	

April 15 - December 20, 1983

Come have the time of your life...

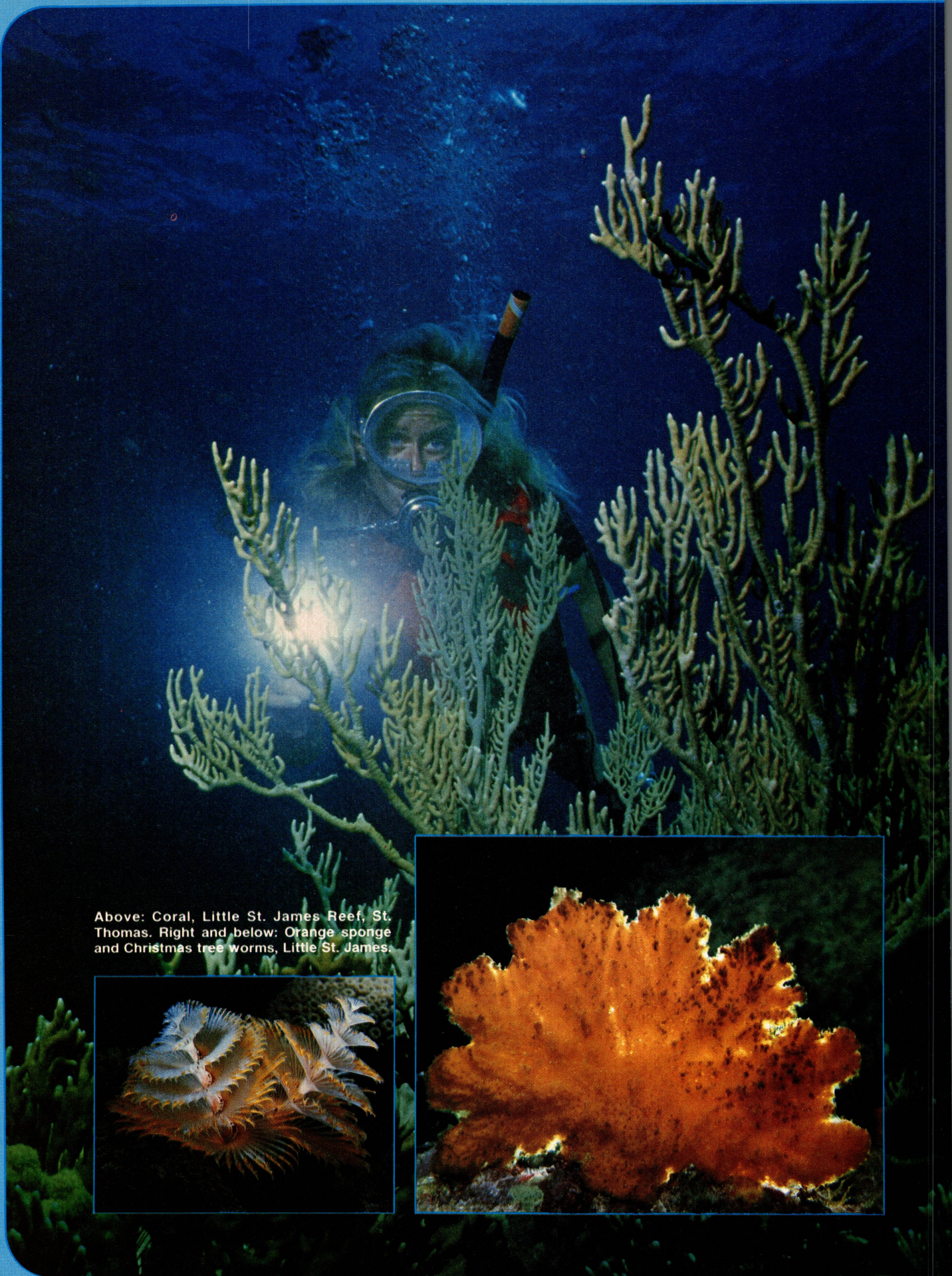
bolongo bay 
BEACH AND TENNIS CLUB

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For Reservations: 800-524-4746

Winter Space Still Available At Slightly Higher Prices.



Above: Coral, Little St. James Reef, St. Thomas. Right and below: Orange sponge and Christmas tree worms, Little St. James.

were the guides for a really unique dive on Cow and Calf. This is a series of tunnels and caves that intrigues divers. The walls of the tunnels tell the story of how much light they receive. Sponges, cup corals and seafans decorate the light receiving areas.

Thatch Cay is another tunnel dive, famous among veteran divers on St. Thomas. The tunnel is over 30 feet long, and tarpon and fish often greet divers when they reach the other side of it. There is usually some surge or current on this particular dive except on the very calmest of days. It should present no problems to a diver as long as you hold onto the bottom when the surge is against you and gently go with the current when it is pushing behind you. There are some large areas inside the cave that bear exploring. You can usually turn up some lobsters and other nocturnal creatures that have found a home of perpetual night.

WRECK DIVING

Moving over to the south side of St. Thomas, I joined Andre Webber, captain/instructor, and Pam Balash, instructor and manager of the St. Thomas Diving Club at Bolongo Bay. They were our hosts aboard the *Diver II*, a comfortable, 26 foot Delta that's part of the St. Thomas Diving Club fleet of dive boats. The Club features a watersports concession located on the beautiful beach that encircles Bolongo Bay. Sailing, snorkeling, diving

and boardsailing are all offered from the beach hut.

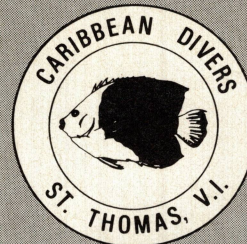
We headed for the *Cartanser Senior*, a 190 foot freighter that lies in 50 feet of water four and one-half miles south of St. Thomas Harbor. Webber is an experienced divemaster and Coast Guard licensed captain and he and Pam provided an expert tour of the *Cartanser*. The bow, railings, and overall photogenic qualities of the wreck make it a photographers' paradise. This is a special, shallow wreck dive that new and experienced divers alike will enjoy.

In addition to the *Cartanser*, and the 120 foot wreck of the *Major General Rogers*, no discussion of wreck diving can ignore the now infamous wreck of the *Rhone*. Large sections of the ship are still intact although it sank in 1867. The *Rhone* is an all day trip, and passports are required since new customs regulations make it necessary for dive operators to check into customs in the British Virgin Islands before anchoring on the wreck. The *Rhone* is also a protected marine resource and no artifacts may be taken from her.

BOTTLE DIVING

For over 300 years, ships have plied their trade in the waters of St. Thomas Harbor. Some other vessels have sunk there, victims of hurricanes and fires. One such incident occurred when a hurricane caught more than 100 vessels in the har-

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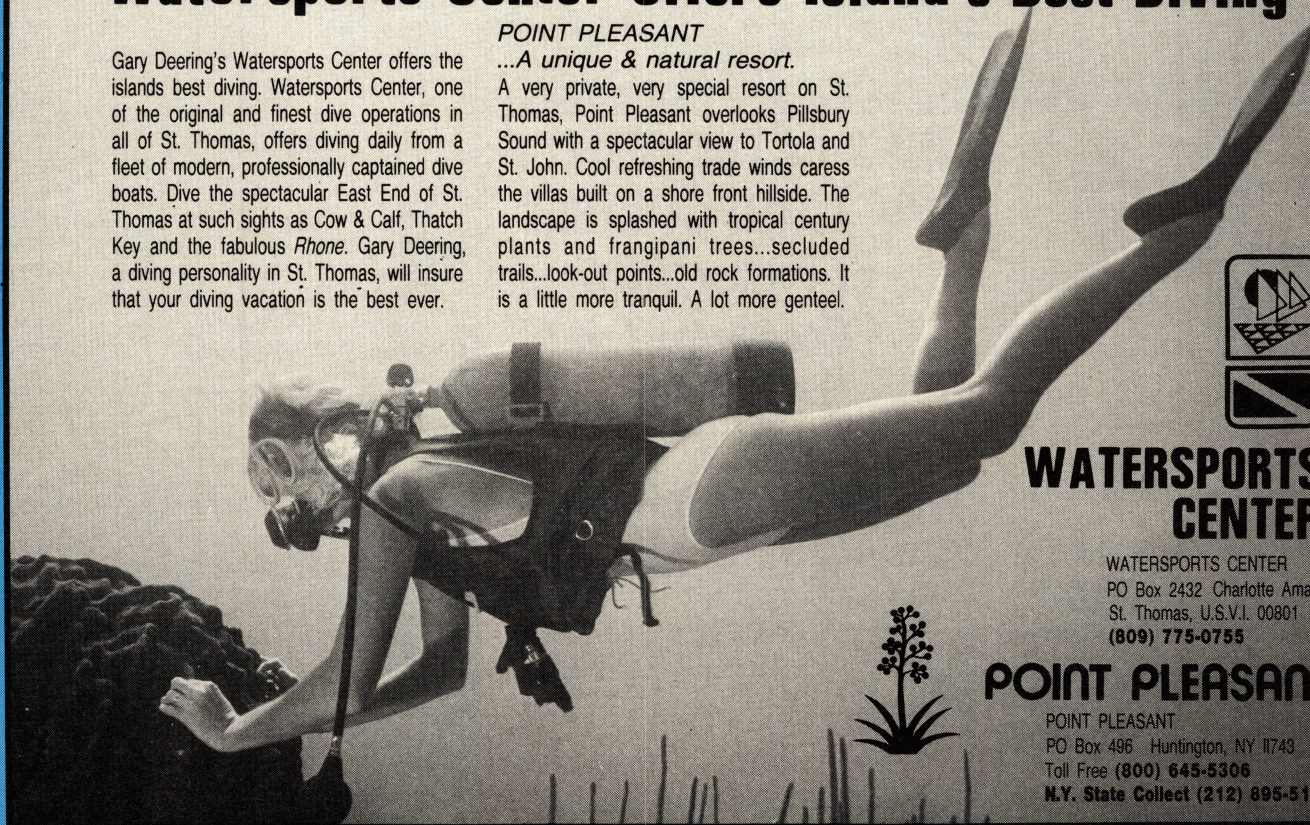
Watersports Center Offers Island's Best Diving

Gary Deering's Watersports Center offers the island's best diving. Watersports Center, one of the original and finest dive operations in all of St. Thomas, offers diving daily from a fleet of modern, professionally captained dive boats. Dive the spectacular East End of St. Thomas at such sights as Cow & Calf, Thatch Key and the fabulous *Rhone*. Gary Deering, a diving personality in St. Thomas, will insure that your diving vacation is the best ever.

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bor and sank many of them. Their cargo and artifacts are still buried on the bottom, and the prop wash of the large cruise ships often uncovers new finds. John Damron, instructor and divemaster at the St. Thomas Diving Club at Pineapple Beach is an avid bottle collector and would be happy to arrange an artifact dive for visitors. His own bottle collection includes hand blown pieces, marble bottles, case bottles and a variety of others. If bottle hunting is your hobby and you don't mind poor visibility (it is, after all, a harbor dive), you might find a couple of nice old containers.

VILLA OLGA

On the southwest corner of the harbor there is a small strip of land called French Town by the local residents. It's away from the shops and markets that dominate Charlotte Amalie and it is instead comprised mostly of older residences and reasonable ethnic restaurants. It is the part of the town in which many of the residents dine and it is the home of the St. Thomas Diving Club at Villa Olga. This club is the main headquarters for all the St. Thomas Diving Clubs. Paula Selby is the instructor-general manager and helps coordinate activities between the various dive operations. For example, you might elect to stay at the Villa Olga and dive only on the boats that are anchored in the harbor (*Mohawk II* and *Diver I*). But, if you wanted to dive at Carval Rock, for example, it would be possible to travel to the St. Thomas Diving Club at Pineapple Beach and make a dive with Diana Backus and Armando Jenik. Or, if you wish to visit the wreck of the *Cartanser* with Andre Webber and Pam Balash, you could travel by taxi or van to the St.

ST. THOMAS DIVE OPERATORS

St. Thomas Diving Club
(3 locations: Villa Olga,
Pineapple Beach, Bolongo Bay)
Box 4976
St. Thomas, U.S.V.I. 00801
(800) 524-4746

Watersports Center
(3 locations: Point Pleasant,
Frenchman's Reef, Sapphire Bay)
Box 2432
St. Thomas, U.S.V.I. 00801
(809) 775-0755

Caribbean Divers
Box 93, Red Hook
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(809) 774-8687

Underwater Safaris
Box 8469
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(809) 774-1350

Aqua Action, Inc.
Box 7576
St. Thomas, U.S.V.I. 00801
(809) 775-3275

Joe Vogel Diving Co.
Box 7322
St. Thomas, U.S.V.I. 00801
(809) 774-2321

Joe Vogel Diving Co.
(Compass Point Marina)
Box 6637
Charlotte Amalie,
St. Thomas, U.S.V.I. 00801
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Thomas Diving Club at Bolongo Bay and go out on *Diver II*. This allows visiting divers to have a single residence and yet travel to all sides of the island to dive.

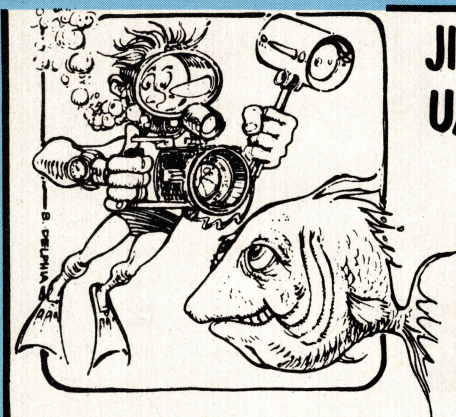
Villa Olga is a comfortable resort structured with divers in mind. There's a freshwater pool, a bar called the Decompression Chamber, and very comfortable rooms that will house a capacity of 42 divers. In addition to Paula Selby, the staff at Villa Olga includes Bill Ellis and Gary Kilbride as instructor/boat captains. There is an excellent Chart House right around the corner as well as a variety of local restaurants. French Town is a charming, quaint community that provides a delightful change of pace from downtown Charlotte Amalie.

MOHAWK II

The St. Thomas Diving Club, managed by Dick Doumeng, is the owner/operator of the 68 foot live-aboard dive vessel, *Mohawk II*. It is one of the newest and most handsomely appointed live-aboard dive boats in the world. With a length of 68 feet and a beam of 22, *Mohawk II* is spacious by any marine standards. Equipped to handle 16 divers on overnight cruises, the ship is big enough to handle three times that many divers on a day charter without even making it appear crowded. *Mohawk II* combines many of the space saving ideas smaller boats use (such as an ingenious compressor and fill station arrangement that can fill 24 tanks an hour yet doubles as a deck locker) and donates that extra room to the space needs of divers and underwater photographers. The crew, Captain Jack Laursen and first mate Eric Link, along with divemaster Rich Campagna and galley master Joanne Schmidt see to it that the boat is run efficiently at all times.

Diving from the *Mohawk II*, whether on a live-aboard basis or a day cruise is just about as easy as diving can be. The spacious decks, huge stern platform and stern gangway all assure a smooth flow of divers to and from the water. I dove Sail Rock on *Mohawk II*. In addition to being one of the best dives in the Caribbean, it was also one of the most comfortable. There is a warm, freshwater shower when you exit the water and lunch, soft drinks and beer after diving.

Plans for 1983 include using the *Mohawk II* as a live-aboard dive boat for week long cruises as well as a day boat for divers staying at the various St. Thomas Diving Club resorts. With the cruises the first part of the week is at one of the St. Thomas Diving Club resort hotels. The last three days are spent onboard *Mohawk II*. This is the format that the Jim and Cathy Church Underwater School of Photography employs during its weekly photo instruction sessions. Jim and Cathy Church will again be offering their photo school during the summer of 1983.



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Villa
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Spend 4 days and nights at the Villa Olga Hotel, dive as often as you like, dine at St. Thomas' fabulous restaurants including our own Chart House. Walk to convenient downtown freeport shopping and then board Mohawk II for your dive cruise.

Aboard Mohawk II you'll find out how luxurious diving can be. Dive as often as you want in the U.S. and British Virgin Island waters. Have your crew serve you fabulous meals with wine, sleep in air conditioned private state rooms, and go windsurfing or beachcombing. For 4 days and 3 nights you are a millionaire.

UNLIMITED DIVE PASS...

The St. Thomas Diving Club's Unlimited Dive Pass is included in all dive packages. If you are a certified diver with your own equipment you can use all 4 of our dive boats including the 40' Goldilocks at Pineapple Beach, Diver I & II at Bolongo Bay and Villa Olga's own Mohawk II.

Villa Olga is the home of Jim and Cathy Church photo courses. The 1983 schedule begins May 8th.

8 Day/7 Night Vacation Packages*

	Non-diver	Diver
Villa Olga and Mohawk II	\$545.	\$650.
Villa Olga	\$265.	\$515.
Learn To Dive (PADI open water certification) ..	\$515.	
Mohawk II Cruise (All meals included)	\$875.	

*All rates are per person and double occupancy.
Winter space still available - rates slightly higher.



Built in 1981, the Mohawk II features a 17 CMF compressor, 50 tanks, 11 air conditioned state rooms, 3 decks, a luxury dining salon and more.



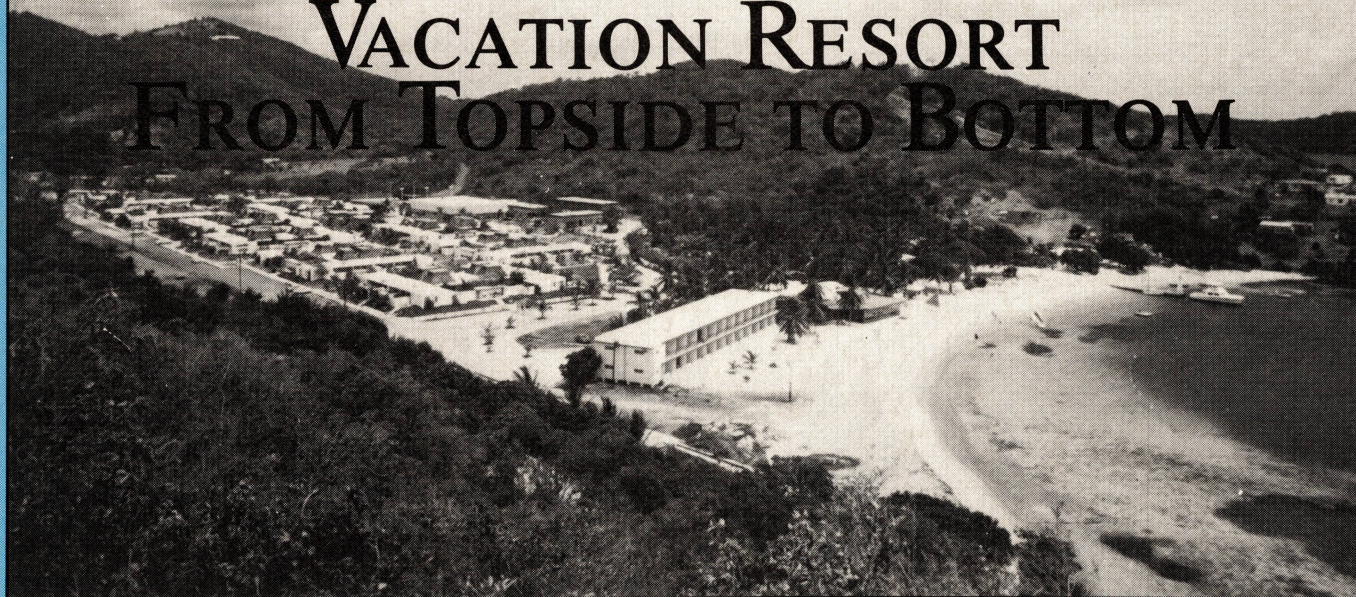
For Information: 809-774-1376 • For Reservations: 800-524-4746
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Above the surface, our \$1.3 million renovation has created tasteful accommodations, comfortable surroundings, lush tropi-



cal gardens, three superb restaurants and an ambience suitable for everyone. For your enjoyment undersea, we've brought the St. Thomas Diving Club, the Virgin Islands premier dive organization, to Pineapple Beach. With their renowned "Unlimited Dive Pass," certified divers can dive from all 4 of St. Thomas Diving Club's boats, including Captain Armando Jenik's 40' Goldilocks, moored steps from your door at Pineapple Beach. And the pass allows an unlimited number of dives for either three or seven days, at a price that's hard to beat; just \$150 for three days and \$300 for seven.

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Combine all this with our 3 Har-Tru Tennis Courts plus Amten practice court, our sunfish sailboats, windsurfers, two

sparkling pools, and entertainment every night, and you have a true classic Caribbean Resort. Pineapple Beach Resort. Your resort.

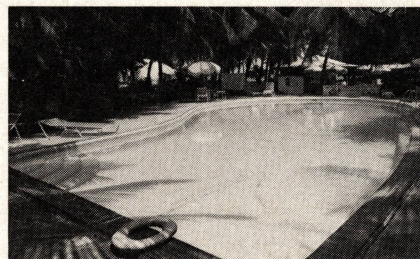
Winter 1982-1983

Scuba package includes:

- 8 days/7 nights accommodations
- Breakfast and dinner daily
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- Nightly entertainment
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\$918.50 per person/double occ.

Rates effective December 15, 1982 to April 14, 1983. (tax and service additional)



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For information call toll free: 800-524-2003

St. John

St. John is the smallest, quietest and least developed of the Virgin Islands. Its 28 square miles of lush vegetation and beautiful beaches are located less than two miles from St. Thomas. Over two-thirds of the island is designated a U.S. National Park, ensuring that no future commercial development can take place. It also gives visitors a chance to appreciate, firsthand, the natural beauty of this unspoiled island.

Travel to St. John is accomplished via a water ferry that leaves from Red Hook Harbor, St. Thomas and arrives, 20 minutes later, in Cruz Bay. In addition to water service, the Virgin Islands Sea Plane Shuttle also provides service from both St. Croix and St. Thomas to St. John.

After visitors have toured the island, there is a variety of shops and restaurants in the Cruz Bay area. It is a perfect place for lunch or dinner. Overnight guests on the island, or those wishing a longer stay, have perhaps the widest range of accommodations to choose from. At the absolute top end of the spectrum is the Caneel Bay Hotel Plantation, possibly the most exclusive resort in the Caribbean, which plays host to a wide variety of celebrities.

At the other end of the spectrum are the Cinnamon Bay and Maho Bay campgrounds. These provide camping facilities that are a unique alternative to hotel accommodations and a favorite among

younger visitors. Since so much of the island is totally undeveloped, the open air atmosphere is quite appropriate.

The diving around St. John is much the same as that found near St. Thomas. Indeed, the islands are so close together that dive operators from both frequent the offshore cays that dot the U.S. Virgin Islands. For example, Congo Cay and Carnival Rock are two dive destinations that are easily approached from either St. Thomas or St. John. St. John does not boast any shipwrecks or vertical wall diving, but it does offer some sparkling medium and shallow depth reefs that, like the rest of the island, are untouched and protected. Excellent shallow water coral formations and schooling reef fish make up the bulk of St. John's inshore dive spots. For example, Johnson Reef is a sloping reef with depths from 10 to 70 feet. Directly offshore Cinnamon Bay, this dive site offers elkhorn, staghorn, star and brain corals. The reef also provides a maze of coral passages and overhangs to explore.

Diving around St. John and access to both the offshore and inshore sites can be arranged through any one of the three operators on the island. At Caneel Bay, for example, Jim Travers runs Scuba Ventures, Ltd. for interested divers. In town, we find easy access to the reefs by St. John Watersports. The shop is in Cruz Bay and has a fleet of four boats that regu-

larly carry a maximum of six divers out to the reefs. Stu Brown has charted many of the dive sites in the islands and is familiar with both the offshore and inshore sites. Arrangements can also be made to dive with Gary Deering's Watersports Center in St. Thomas via The Dock Shop in Cruz Bay.

St. John's small population (2500) ensures that your privacy is protected. Sometimes known as the "quiet virgin," St. John is perfect for a romantic stroll on a deserted beach, a week of quiet relaxation, or a snorkel and dive filled holiday. It's an opportunity to observe the island the way the first Indians and European explorers did.

ST. JOHN HOTELS CATERING TO DIVERS

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Box 120
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Cinnamon Bay Campgrounds
St. John, U.S.V.I. 00830

ST. JOHN DIVE OPERATORS

Scuba Ventures, Ltd.
Caneel Bay Plantation
St. John, U.S.V.I. 00830
(809) 776-6111

St. John Watersports
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Cruz Bay, St. John
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(809) 776-6256

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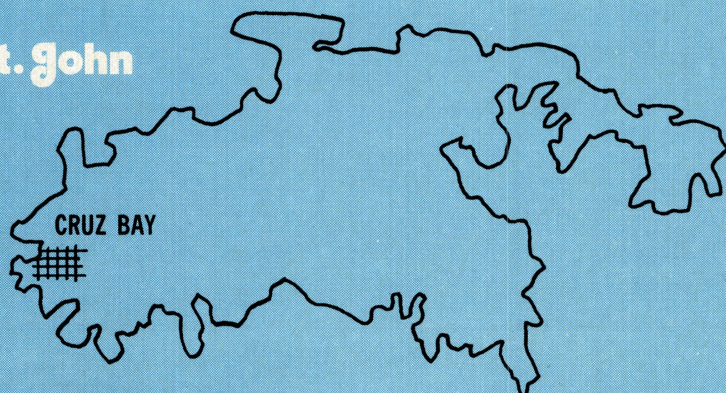
Beauty beyond price, at a beautiful price. At Cinnamon Bay Campground, on St. John in U.S. Virgin Islands. Magnificent beach, sailing, snorkeling, scuba (new scuba package available). Hiking in the Virgin Islands National Park. Commissary, cafeteria. Rates for two persons: Dec. 1-May 15, tents \$32, cottages \$40; May 16-July 31, tents \$28, cottages \$36; Aug. 1-Nov. 30, tents \$18, cottages \$25; bare sites \$8 daily all year. Write for reservations to: Cinnamon Bay Campground, P.O. Box 120, Cruz Bay, St. John, U.S. Virgin Islands 00830 or call toll-free 800-523-9969 or 215-923-1300. Reservations not accepted more than 8 months in advance. Maximum stay, 14 days.

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St. John



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ST. JOHN WATERSPORTS

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St. Croix

Lying 35 miles south of St. Thomas and St. John is the island of St. Croix. It has twice the land mass of St. Thomas, and has a lot more area to distribute its population. As you tour the island by car, beaches and quiet bays pop up every few minutes. The pace of life on St. Croix is slower than that on St. Thomas and tempered by its strong West Indian cultural roots.

Christiansted is the chief city on St. Croix. The harbor, while protected by an offshore reef that ensures safe anchorage, is not deep enough to allow large cruise ships. Most of the cruising done in and around St. Croix is done in racing yawls, tall sloops and the luxury sportfishermen that dot the harbor. Christiansted is located directly on the water. The main wharf has a hotel, some restaurants and a variety of shops. Downtown Christiansted surrounds the immediate harbor area and is a very picturesque Caribbean town. Overhanging plants and trees, small streets and the beautiful view of the harbor accompany you on any excursion through town.

As soon as you leave town, the scenery changes to rolling hills and lush green vegetation. Private condominiums, estates and island residences dot the green hills. Many of St. Croix's hotels are located just outside Christiansted and enjoy a combination of lots of land, and beaches with easy access to town for shopping and sightseeing.

THINGS TO DO

The key to enjoying yourself on St. Croix, much like in the rest of the U.S. Virgin Islands is to take advantage of the tremendous variety of opportunities offered. St. Croix has two 18 hole golf courses, plenty of tennis courts and a variety of tours. The shops in town are well worth browsing in, and there are over 30 excellent restaurants in Christiansted alone. Night life is available both in town and at the hotels. The entertainment scene is mostly composed of dining, listening to music in one of the small cafes and quietly enjoying an after dinner drink.

Perhaps the greatest attraction St. Croix has for its visitors is its tremendous natural resources of beaches, clear water and lush coral reefs. The tradewinds provide a constant source of power for bareboat charters, for large catamarans that take guests daysailing, and for the growing number of boardsailors that have begun to appear all over the island.

PLACES TO STAY

Just outside of Christiansted, the Buccaneer Hotel is one of the finest in the en-

tire Caribbean. Tastefully laid out on 240 acres, the hotel has three beaches, eight tennis courts, and an 18 hole golf course, all right on the premises. There are lovely beach front rooms and a full watersports concession provides snorkeling equipment, snorkeling trips, and full dive packages for inexperienced and certified divers. It's pretty easy to dive at the Buccaneer Hotel. A dive boat picks you up right at the end of the pier and you're within minutes of some of St. Croix's finer sites. At the Buccaneer, there is a bus shuttle to town (five minutes), rental cars are available, and, of course, there are taxis available for hire.

If you prefer to stay in town, the King Christian Hotel is located right on the harbor in Christiansted. If you stay here you won't have to worry about transportation anywhere. The shops, restaurants and places to see are all within a minute or two of the centrally located hotel. Most of the rooms at the King Christian have a superb view of the harbor and surrounding town. Caribbean Sea Adventure's main headquarters is located just in front of the King Christian Hotel, making it easy to get on your dive boat.

Or, if you're looking for a quiet, tranquil hideaway for some rest and relaxation, there is the Tamarind Reef Hotel outside of town. It is on a quiet, calm, beautiful beach and provides a full range of services for its guests.

Queens Quarters is another hotel close to town that is set in a beautiful surrounding of flowers and terrace gardening. There are individual units throughout the property and a pool and paddle tennis court are among some of the facilities offered guests.

BUCK ISLAND

St. Croix is the home of the Buck Island Reef National Monument. Administered by the National Park Service, the island lies about four miles northeast of Christiansted and is easily reached by catama-

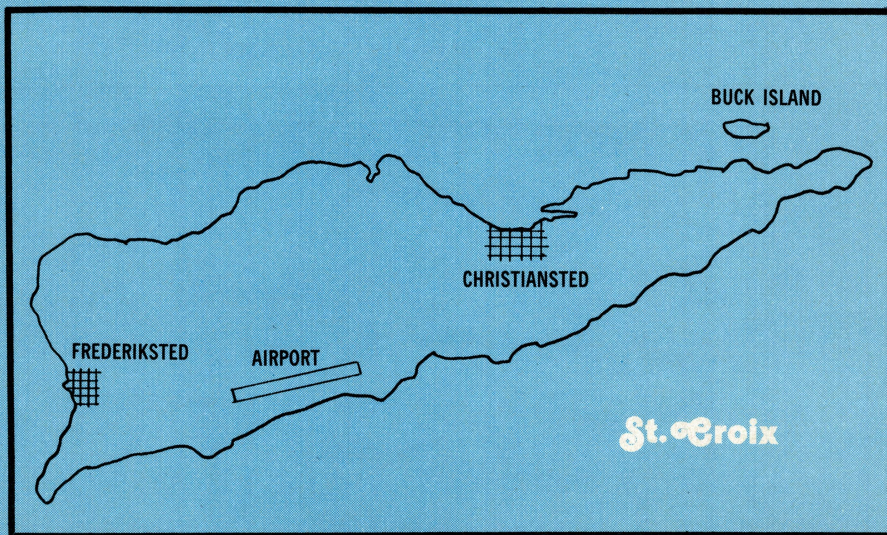
ran, powerboat and glass bottom boat. Day trips of varying lengths are offered through most of the hotels or can be arranged directly on the wharf in Christiansted. Buck Island is surrounded by an immense coral reef that has been protected by law for many years. In depths of 15 feet of water or less, there is an underwater trail that winds through the shallow reef. Signs indicating different types of coral and fish are evidenced throughout. There are markers that ensure you don't get lost during your 30 minute snorkel through the trail. The shallows teem with angelfish, trunkfish, butterflyfish, and squirrelfish.

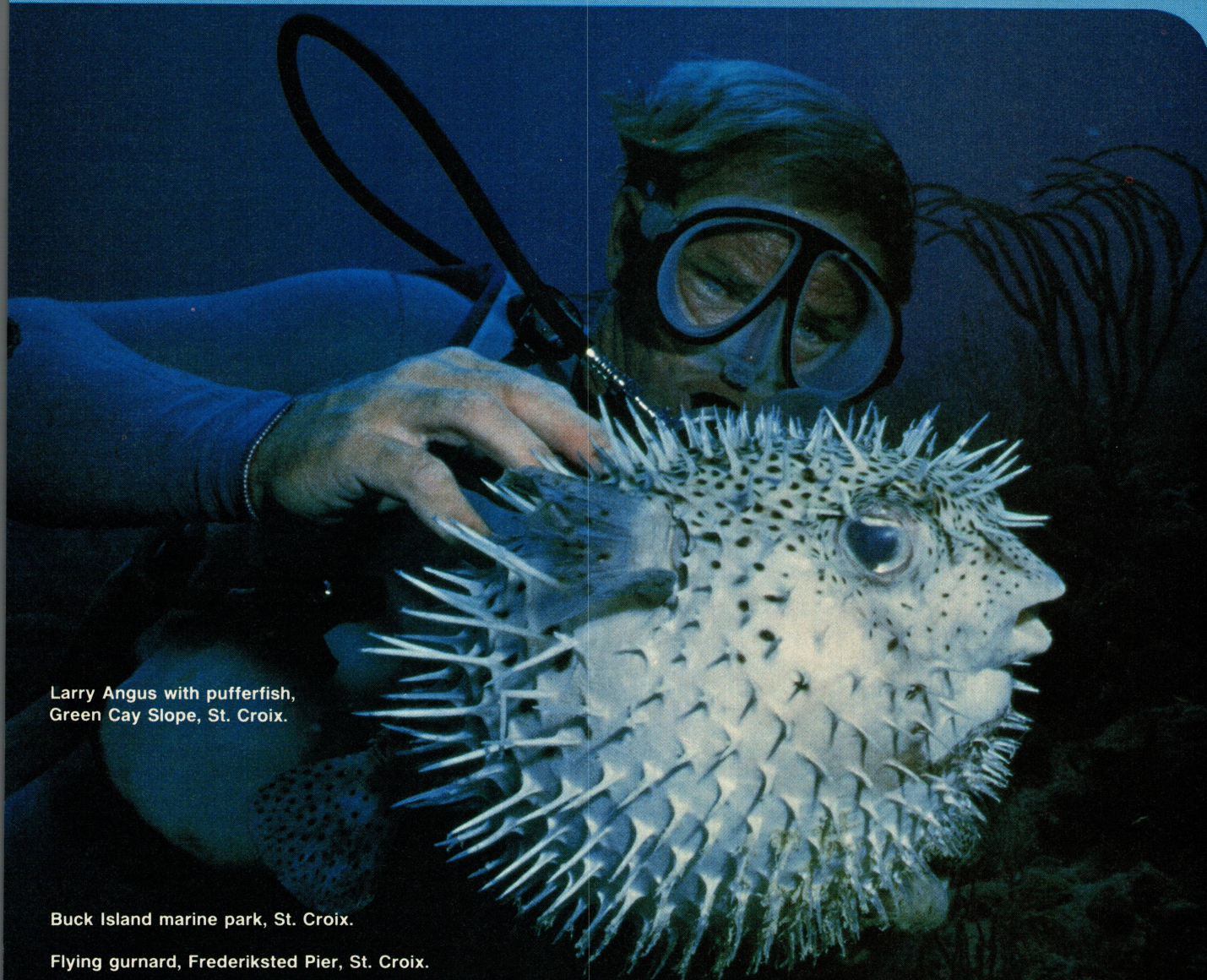
While there is no scuba diving allowed on the trail itself, there are plenty of dive sites around Buck Island. The same reef that attracts snorkelers lures divers and underwater photographers as well. The shallow, clear waters provide good background for any underwater photo and ensure you'll have plenty of bottom time. The coral reef itself is prolific. The large elkhorn coral formations provide an underwater photographer with lots of good shots and the passageways turn up a new reef fish around every bend.

CARIBBEAN SEA ADVENTURES

The major dive operation on St. Croix is Caribbean Sea Adventures. It is owned by Larry Angus, a Canadian native who has been diving in the Virgin Islands since 1966. Angus' main operation is on the wharf in Christiansted and his fleet of three dive boats is moored there. The *Deliverance* is a 40 foot, 12 ton vessel. It was designed with divers in mind and features a wide, broad, stern area. The maximum load that Angus will carry on a two tank dive is 12 divers, and there is plenty of room to spare. Single tank dives allow for a capacity of around 22 divers. *Deliverance* cruises at 16 knots, a speed that allows the boat to range to far off dive sites.

The *Scorpio* is a 20 foot Lindsay. There

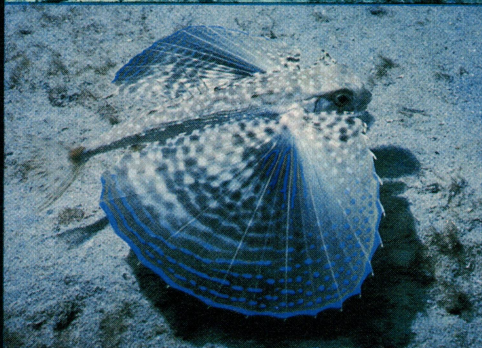




Larry Angus with pufferfish,
Green Cay Slope, St. Croix.

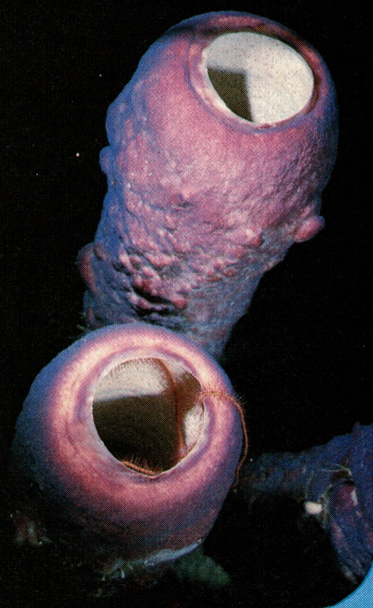
Buck Island marine park, St. Croix.

Flying gurnard, Frederiksted Pier, St. Croix.



Featherduster worm, Frederiksted Pier.

Sponges, Frenchcap Cay, St. Thomas.



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ST. CROIX, U.S. VIRGIN ISLANDS



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is plenty of deck space for cameras and the stern swings open to allow easy access to the water. All you do is fall in.

The *Sea Spray* is a 22 foot runabout powered by a 150 horsepower outboard engine. This boat is often used in resort courses or for small groups of specialty photographers. It is open and fast—just perfect for reaching some of the dive sites close to Caribbean Sea Adventures.

Angus has a full staff of dive instructors and boat captains to serve his visiting divers. Among the instructors are Joe Donahue, Bob Wheeler, Jim Hurlburt, Jay Waters and Marc Salter. This staff provides a wide range of services for Caribbean Sea Adventures. For example, an instructor may do a resort certification course for new divers in the morning and be back onboard a boat to guide the afternoon tank dive. Caribbean Sea Adventures does offer resort certifications and also offers a full SSI certification course that takes about four or five days.

The normal schedule of operations of Caribbean Sea Adventures allows for a maximum amount of four dives to be made on any day. There is a two tank dive at 9:00 am; the afternoon boat leaves around 2:00 and there is a night dive scheduled every day of the week. This is usually the Frederiksted Pier, but can be changed to accommodate requests to dive other areas as well. The latitude in the scheduling of the dive operations on St. Croix allows for a great deal of choice on the part of the diver. Packages are available that allow visiting divers to pick and choose when and where they'd like to dive. It is a convenient way to dive and a perfect way to include a non-diving spouse on a dive vacation. There is plenty of time to make a two tank or one tank dive and still have the better part of the day to spend sight-seeing or shopping.

DIVING

The chief difference between St. Thomas and St. Croix is the existence of true, classic Caribbean vertical walls in relatively shallow water in St. Croix. Diving from the *Scorpio*, we traveled from our dock at the Buccaneer Hotel to the Salt River. This estuary has created a natural system for nutrient delivery to the coral reefs directly offshore. Each change of tide washes the reef with another load of nutrients. Because of this, the coral walls on both the east and west side of the estuary have built themselves up dramatically and provide excellent drop-offs.

We dropped in on the west wall of Salt River and immediately followed Joe Donahue, divemaster/instructor, over the wall. The top starts at about 25 or 30 feet and plunges to a depth of about 1200. Grouper, snapper, large sponges and good sized seafans were evident. In many places, the wall was nearly vertical, which made for interesting camera an-

gles and close examination of the reef. Slipper lobsters, spiny lobsters and morays dominated the overhang and coral holes. Black coral was in evidence as shallow as 80 feet.

This type of excellent wall diving sets St. Croix apart from the other Virgin Islands. There are more than 50 miles of fringing coral reefs surrounding St. Croix that await exploration by divers.

A little further west of Salt River lies a group of dive sites loosely referred to as Cane Bay Wall. Conditions permitting, Caribbean Sea Adventures travels to the walls and divers there enjoy tremendous visibility, large sponges, and fish, as well as interesting plant life. There are two other dives in the general vicinity called North Star Wall and Davis Bay Wall. While not as well known as Cane Bay, they are fascinating.

Moving closer to town, we came across a dive site called The Stacks. This is really a series of small coral peninsulas that jut out into the sandy bottom. There are perhaps one-half dozen of them, and each can be explored in the course of a dive. There are canyons, crevices, undercuts and small caves to examine. In addition to wall diving, there are also sloping reefs that provide interesting shallow dives. Most of these are in 50 feet of water

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photo/Bill Gleason

or less, and make for a perfect second or third dive of the day. The underwater topography on these dives runs to ledges, overhangs and coral heads. It is possible to see resting nurse sharks under the overhangs and the coral heads teem with marine life. On one dive, at Long Reef, there were about eight of us diving together and I came over to a coral cut to see five people with their heads under a ledge. Not wanting to be left out, I drifted down to the bottom of the coral cut and joined them. After my eyes became accustomed to the dark, I saw a small nurse shark clearly outlined.

FREDERIKSTED PIER

St. Croix is also the home of one of the most unique dive opportunities in the Caribbean. On the opposite side of the island from Christiansted is Frederiksted. There is a large pier off this small town that attracts scores of divers and macro photographers from all over the world. The pier is over one-quarter of a mile long, and I once heard someone say that there are over 600 pilings supporting it. These are the main interest on this spectacular and unique dive. Each one of them plays host to its own community of sponges, shrimp and tubeworms.

The dive itself is pretty easy to make. Since the pier is so large, you can drive your car right out to the end and get dressed. Then you just walk over to the other side of the pier and jump off. It is a

good idea to hold your mask when you do this because you drop about eight feet. The staff of Caribbean Sea Adventures brings along a line and bug bag to pass the cameras down to the divers in the water. Joe Donahue led us on a tour of the pier. The best way to explore this area is to pick a single piling, and, starting at the top or bottom, examine it closely. Each one has its own pattern of soft corals, sponges, gorgonians and sea creatures. It is a macro photographer's idea of paradise. If you don't find something that interests you on your first piling, you've got 599 others to choose from.

The Frederiksted Pier is also host to a colony of seahorses. Several years ago, the colony was devastated by some strange conditions and currents generated by a hurricane in another part of the Caribbean. Since then, the animals have been making a great comeback and one or two of the seahorses can usually be seen on a night dive. These are six and seven inches in length and can be found among the gorgonians and soft corals. They usually wrap their tails around some part of the pilings and camouflage themselves excellently.

There is also a dive shop located right next to the Frederiksted Pier. In addition to providing access to the reefs on the Frederiksted side of the pier, owner/operator Ed Wendt provides equipment and tours for divers exploring the pier. 

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Anyone interested in these archaeological research positions and student internships should send a resume and two letters of reference by January 1 to: R. Duncan Mathewson III, Marine Archaeologist, Rte. 4, Box 904, Summerland Key, Florida 33042.

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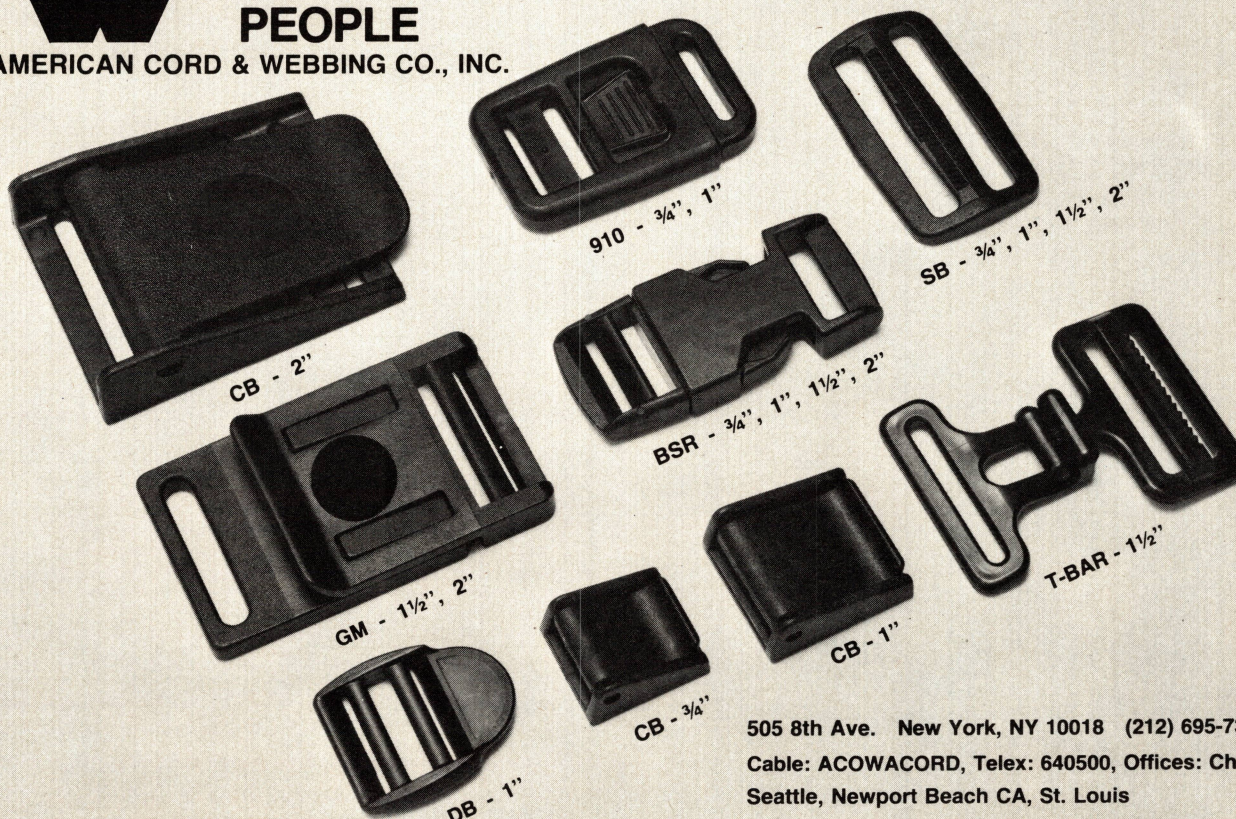
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SCUBA SCULPTURE

artist reveals story behind
creation of \$10,000 u/w art object

BY BOB STRAIGHT



Above left: The body of the wax master had to be cut up and hollowed out slightly to facilitate making the sculpture. Above and left: Different waxes were used on the model. The body was soft sculpture wax, and more detailed areas such as the mask were carved from a plastic-like wax.

photos/Bob Straight

To me, this sterling silver sculpture represents all the thrilling moments I have spent underwater: The quiet gentle motion of the sea creatures; the weightless environment; and the ability to float and glide as a fish moves.

I had the desire to create a somewhat larger piece of sculpture for quite some time, but had not found the exact combination. I was diving on the *Balboa* off Grand Cayman several years ago, and taking photos like everyone else, when the right combination seemed to fall into place. Shirley and the Angel represents a diving experience.

Once I had the idea the question became, "Do I have the necessary technology and artistic ability to pull it off?" After 75 hours, the glimmer of an idea I had on the *Balboa* was not even a wax model.

The technical process was even more involved than the art work. The first problem was weight. The wax art work was solid. The statue was being cast in expensive silver, so it had to be hollow. Thus, the wax model had to be hollowed out before the statue was made. There was another problem, the sculpture had to be cast in sections. The original wax model was cut up and a mold was made of each part.

I use the lost wax casting process as it works best for detailed art work. Even with the great care spent on the waxes, the sculpture still had over 100 ounces of silver and well over 300 hours of labor—total value of \$10,000. 🐠

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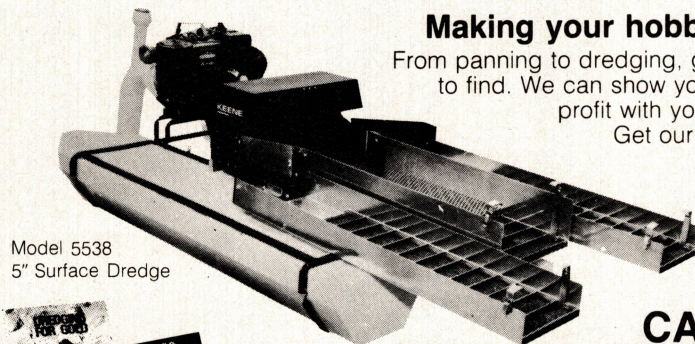
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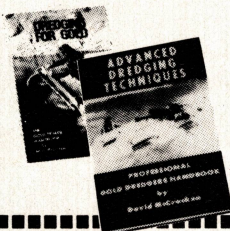
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SCUBA PROTECTION FILTER

BY JIM WALKER

You're on a budget vacation to Lost Island and, just in case you might feel like a plunge, you've brought along your dive gear. When you do decide to make a dive, you check around and find that the only dive shop on the island is operated out of the back of the local garage. Being adventurous, you decide to make a dive with this firm and use one of its rental tanks. Just for the heck of it you open the valve of the tank in question a smidgen and are assaulted by a jet of rust-colored dust. Needless to say, you ask for another tank. Even though the alternate tank doesn't show the same problem, your confidence is so shaken that you get a headache and abort the dive.

Your worry about the quality of air in the second tank could have been greatly reduced if you had come to the island



equipped with the Scuba Protection Filter from Professional Scuba Repair of North Hollywood, CA.

The SPF is designed to filter carbon and rust particles from the air going into or coming out of a scuba tank. Two lengths of filter are provided for these opposite uses.

The basic design of the SPF includes three parts: a swivel yoke similar to that found on a regulator, which attaches to the tank valve; a tubular filter; and a valve which extends from the filter, and on which the regulator or air fill yoke clamps. All sections are heavy brass, pressure rated to 3300 psi, and screw together, sealed by O-rings.

The yoke is standard size—about four inches long with knob. The valve extension is about one inch long and the filters are one and one-half inch in diameter, and four and one-half or one and one-half inches long. With the long filter the system weighs two pounds nine ounces, and with the short, one pound 12 ounces.

Both filter barrels have wire mesh at either end and a series of Dacron pads between. The longer filter has a chamber of moisture-extracting granules between the pads. The long and short filter are interchangeable and can be purchased separately. Once the yoke and extension

are purchased with either filter, buying the other filter barrel will complete the dual system.

The longer filter is intended to be used when your tank is filled from a compressor or air bank system. The yoke of the filter system is placed over the tank valve and the compressor yoke is placed over the filter valve extension. As the air passes through the filter into the tank, particulate matter and excess water are removed. The long filter can also be used between your tank and regulator, but since the air flow is reversed the filter must be perfectly clean. The manufacturer recommends using the shorter filter for this application. Place the filter yoke over the tank valve and position the filter where it won't bump the diver's head (there are a variety of workable positions). Then attach the regulator yoke to the valve extension. As air passes from the tank through the filter it is cleaned of rust and carbon, but not water.

These filters prevent build-up of clogging particles in the tank valve and regulator, and the longer filter barrel will keep damaging moisture from entering your tank as well.

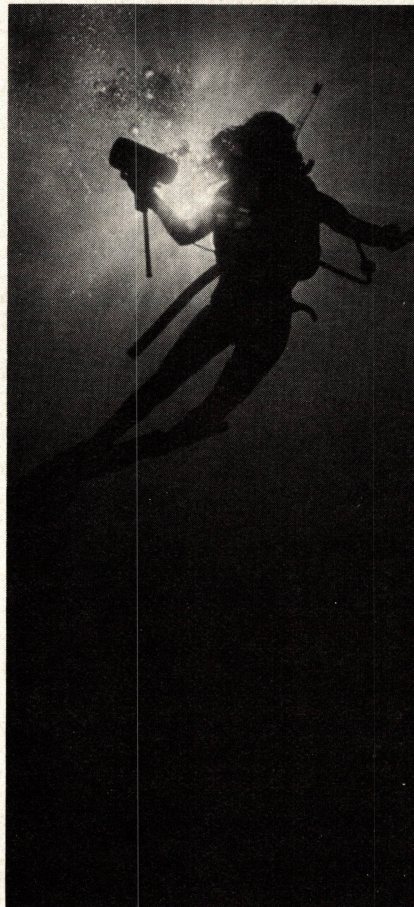
The sections of the filter system can be easily unscrewed to check the O-ring condition, or to change filter pads, or to dry the moisture extracting granules. Wipe the before-filter orifice of the system with a cotton swab. This would be the extension end of the long system and the yoke end of the short system. If the swab shows a concentration of rust or carbon, or water it might be wise to check the condition of the filter element. A quick check for excess moisture in the filter is to crack the tank valve open while the system is attached. If a mist sprays out, the granules need changing or drying. The granules can be dried overnight on a paper towel or speed dried with a blow dryer (don't blow them away).

Professional Scuba Repair offers filter element replacement kits which include O-rings. The longer filter kit is \$4.50, the shorter kit \$3. In bare brass the long filter system (with yoke and extension) is \$125 and the short filter system is \$94. With a brushed chrome finish the long system is \$140, the shorter system, \$109. The long filter barrel only is \$50.75 in bare brass and \$55.75 in chrome. The short filter only is \$18.80 in brass and \$23.80 in chrome. An adapter for European tank yokes is \$1.90. A vinyl carrying pouch which will accommodate the long filter system plus a short filter barrel is \$14.

If you worry about the quality of air going into or coming out of your tank the Scuba Protection Filter may just put your mind at ease. It may prolong the life of your tank and will eliminate untimely regulator overhauls caused by rust or carbon clogging.

For further information contact Professional S.C.U.B.A. Repair, 5725 Cahuenga Boulevard, North Hollywood, California 91601. 🌿

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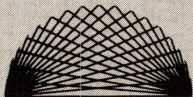
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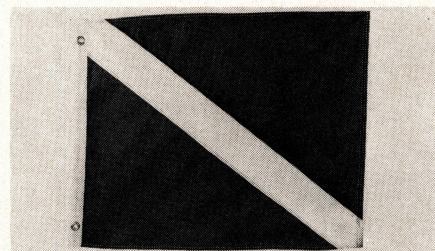
BOAT DIVING ETIQUETTE

(Continued from Page 10)

deck. Weightbelts, tanks and bags of game also always remain on deck. Never take these into the bunkroom or galley.

Unless you are on a student trip, the boat will probably move at least a couple times during the day. Your popularity will plummet if you're always the last one into the water and last to return. Many clubs give you only so much time, say 15 minutes, to get into the water once the boat is anchored. It's a good idea to go in the water well before that time is up so you don't keep everyone waiting for you.

If your boat diving is being done in the ocean, sooner or later you will be caught in a current. All California charter boats



All divers in the U.S. are familiar with the red and white divers down flag.

have a current line. This is merely a couple hundred feet of floating line attached to an inner tube. You swim to the line and pull yourself along it, hand over hand. In rare instances, you will swim to the inner tube and the crew will pull you in. This will only happen when the current is extremely swift or you are too exhausted to come in on your own. For the safety of divers after you, make sure the line does not get tangled on your gear.

When you are coming back from a dive, don't linger on the dive ramp. Remove your fins and climb aboard as quickly as possible. Returning divers may be tired and need a place to rest. If you happen to be standing on the stern, help divers on the ramp by relieving them of fins, game bags, polespears, etc.

Boat captains will not appreciate you going below decks dripping wet. If you need something from the bunkroom area ask a non diver or a member of the crew to get it for you.

Here are some other don't's: Don't walk around with your fins on. Your maneuverability and stability are lessened. Don't take blankets and pillows belonging to the boat up on the deck where they can get wet and dirty: Leave them below in the bunks where they belong. Clean up after yourself when you eat or drink—there are no busboys or waitresses to do this for you.

If you are going to board a boat at night, do so quietly. Don't drop objects

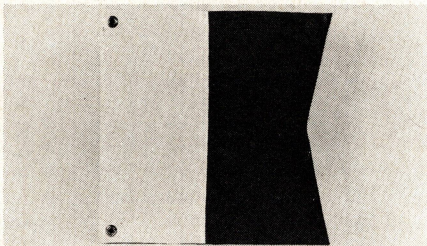
on the deck, there may be people sleeping below. If you must socialize, do it quietly as well. Divers are a friendly group, but they won't be very cordial to those who have kept them up all night.

PRIVATE BOAT DIVING

If you are invited to dive off a private boat, remember, your friend has a considerable investment in his vessel and won't appreciate guests who give it unnecessary wear and tear. He also won't appreciate the diver who leaps to the dock and speeds away in his car when the boat docks, without offering to help clean up and wash down the boat.

Space is at a premium in the smaller boats and their owners have often developed specialized techniques for making the most of it. For example, one of my friends is a back flotation freak, as are most of the people who dive with him off his 18 foot boat. Before gearing up he at-

photos/Geri Murphy



The blue and white flag above is the only dive flag recognized internationally.

taches his BC and regulator to his tank, clips it to a line and throws the whole system overboard. This leaves much more room in the boat to gear up: BC's, regulators, weights and tanks are not in the way. The divers put the rest of their gear on in the boat, then fall overboard and wiggle into the BC/tank in the water.

FLYING THE RIGHT FLAG

Did you know that the red and white divers down flag—so familiar to divers in this country—is not recognized by foreign countries? That blue and white flag flown by many charter boats (along with the red and white flag) does not mean, "Come over for cocktails when the dive is over." It is the Alpha flag and means, "I have a diver down, keep well clear at slow speed." It is to be flown, by law, whenever a diver is down in international waters. If you aren't sure where state waters end and international waters begin, call your local Coast Guard and ask.

MORE INFORMATION

All of the national certification agencies offer advanced diver programs. For information on these programs contact: NASDS, 641 West Willow Street, Long Beach, CA 90806; NAUI, Box 14650, 4650 Arrow Highway, Montclair, CA 91763; PADI, 1243 E. Warner Ave., Santa Ana, CA 92705; SSI, 2619 Canton Court, Ft. Collins, CO 80525; YMCA, Box 1547, Key West, FL 33040.

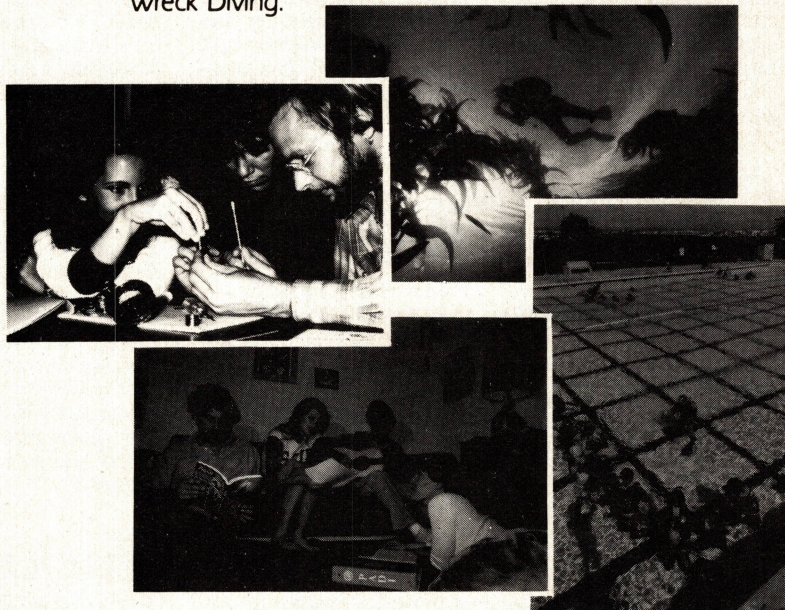
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SDM travel SECTION

DIVE MED COURSES

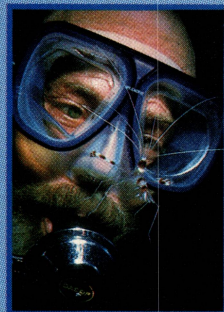
New Wave in Medical Education

By Dee Scarr

Imagine this sight: a Caribbean island, home of tropical reefs, and a large, air-conditioned meeting room with a speaker stand and slide and film projectors. Each morning, promptly at 7:45 am, 40 bright-eyed physicians, pen and notepaper in hand, file into the meeting room for their eight o'clock lecture. After a brief lunch break they return to the classroom, and only at 5:00 pm does the final lecture end. Out come the 40 physicians, discussing the implications of what they've learned, eager to return to their rooms to study.

Sounds good, right? But of course it's not true. First of all, people involved in dive medicine generally enjoy diving, so alter the schedule to allow for two dives a day. Second, physicians are people too, so change "promptly at 7:45 am" to "sometime around eight o'clock" and add "coffee cups in hand."

The coffee cups are particularly understandable when you consider the course schedule. A typical dive medicine course runs something like this: 8:00 am - 10:00 am lecture; 10:00 am - noon, dive; noon - 1:00 pm, lunch; 1:00 pm - 3:00 pm, lecture; 3:00 pm, dive. Add an occasional after dinner lecture. The topics? They sound familiar to any scuba diver: physics and physiology; non-pulmonary barotrauma (ear, sinus, etc. pressure prob-



photo/Anita Bassett



photo/Bruce Bassett



photo/Jerry Martin

lems); pulmonary overpressure (lung problems); decompression sickness—its theory, recognition and treatment; dangerous marine life and so forth. Physicians learn all about dive problems, but the courses also teach them how to differentiate dive related problems from those that are *not* related, but have the same signs and symptoms. Dive medicine is more complicated than it seems, and yet, while attendees are mastering the complications of the program, many of them also manage to squeeze in advanced diving or U/W photo instruction.

Why do physicians enroll in such rigorous, time consuming courses? One reason is to acquire AMA continuing education credits, another is to have a tax-deductible, if busy, dive trip. But both of these goals could be achieved with much less effort. Essentially, people take dive medicine courses because they want to learn about the subject. Ben Platt, an inter-

nist from Pennsylvania, has been through two separately sponsored dive medicine courses, and plans to take more. He says, "There was zilch in medical school about dive medicine. My scuba instructor was good, but I sure felt funny learning about dive medicine from a used car salesman! I felt I should know more than he."

Although Dr. Platt's practice doesn't directly involve much dive medicine, he does occasional physical examinations for potential scuba students. Also, his in-depth knowledge of the effects of pressure helps him make decisions about the air transportation of patients with lung problems, or those on mechanical ventilators.

Roger Hassid has been to four different dive medicine courses. He enjoys the exchange of ideas not only in dive medicine but in medicine in general. Also, he believes, "It is good insurance for my family and friends to have someone on the spot who knows what to do in case of a problem, at least until transport to a chamber."

Generally, dive medicine is not a part of Dr. Hassid's daily practice. But a diver who has a problem at a resort where this doctor is diving is more likely to receive the proper first aid and/or treatment than if Dr. Hassid had not taken those courses. This is

(Continued on Page 82)



If you ask around Grand Cayman, people will tell you the islands' most memorable songs have an undersea theme, with lyrics written by an enterprising entertainer whose stage name is the Barefoot Man.

Britannia still rules the waves surrounding this British Crown Colony, but divers dominate the depths. The Cayman Islands have become such a popular dive destination that this sport has been immortalized by Grand Cayman's resident songwriter, George Nowak.

Barefoot may soon have to change his name to Cayman's Scuba Troubadour. The 32 year old German-born musician has been delighting audiences on Grand Cayman for 12 years with his catchy, sometimes corny, "country calypso" songs about island life. During the past four years, however, Barefoot has established himself as the balladeer of bottom time, with a well-known repertoire of 20 songs dedicated to divers. Barefoot is the reason dive groups here are found not only on flattop decks, but also on the dance floor attempting to calypso to such offbeat tunes as "Barracuda" and "That's a Moray."

SCUBA TROUBA- DOUR

Grand Cayman's Barefoot Man Mixes Music And Water For Diving Ballads

By Barbara Currie

What inspired Nowak to risk the plunge from traditional West Indian favorites such as "Yellow Bird," into a novelty market of scuba songs, is simple. Barefoot explains: "In the '60's, surfing was king of watersports and the Beach Boys became famous. Here in Cayman, we have over 40,000 divers each year—diving is our biggest attraction, and a rapidly growing sport all over the world. Well, I decided all those divers might be a good topic for my songs."

He was right. His two albums bear titles that would make any C-card holder grimace: "Come Scuba Do With Me," and "Scuba Do 2," but the music within is surprisingly ear-worthy. Those tunes have kept both certified divers and members of the non-aquatic set on their toes in more ways than one. The lyrics are a clever combination of dive jargon and double entendres too obvious to miss and they leave hardcore divers grinning.

His first album became much more than a novelty: Barefoot has sold over 10,000 copies of it in the past four years. Its sequel, "Scuba Do 2" released last year, is following the same pattern. Both are distributed by over 200 dive shops in the U.S., and several cuts from both albums have been played frequently on Dr. Demento's syndicated radio program.

The response to this tongue-in-cheek tribute to the dive industry has resulted in a rapid ascent of the Barefoot Man's popularity not only on his Cayman home turf, but also overseas in the U.S., Canada and the Caribbean. George Nowak has become scuba diving's troubadour. Divers are apparently delighted about having their own set of folk songs. No one else in the world has ever written songs about divers, and even the most jaded diver seems to enjoy Barefoot's not-so-subtle, humorous lyrics poking fun at their sport. He's done what no one else has been able to do: show divers, through his songs, that we can laugh at ourselves. He's observed thousands of us on Cayman, and in his lyrics, he's captured our passions, obsessions, follies and quirks.

Barefoot himself is bemused by his scuba tunes' splashy success. A keen skin diver, he professes a passion for the sea and its creatures, but admits he'd rather go down without tanks.

"If God had wanted me to be a fish, he would have given me gill slits and a dorsal fin," says Barefoot. "So I can't pretend to be an experienced diver. But I've watched so many that I think I know the sport pretty well from a human viewpoint—the people it attracts and their traits. What always surprised me is how seriously divers take themselves. Well, I wrote these songs for two reasons—not just to tap a new market, but also to add a little humor to the dive industry."

Four years after the debut of his scuba

tunes, Barefoot can claim success: his songs are no longer a novelty, they're as much a part of Cayman as Seven Mile Beach and Bob Soto's. In fact, it's common to overhear newcomers to Grand Cayman ask, "Where can we go to hear this guy who plays the songs about divers?" Once they listen to Barefoot and Band in the Holiday Inn's Wreck of the Ten Sails Lounge, they understand why Cayman's best known entertainer stages sell-out performances. He's not just a musician and singer—he's a showman.

Even after a decade on a tiny island of fewer than 17,000, Barefoot has a large local following. A large percentage of those who crowd the dance floor six nights a week have been dancing to George Nowak's music for years. His popularity has created an unusual situation which is atypical of the dive industry stereotype. Like most attractive entertainers, Barefoot has his groupies, both among residents and repeat visitors. But unlike the bronze demigods working as divemasters along Cayman's coast, Barefoot's followers are not limited to would be sea-nymphs. Many of his avid fans—and they represent both sexes—are old enough to be his parents. His appeal as a versatile entertainer is ideal for a tiny island tourism center. The "guy who plays the songs about divers" also plays everything from rock to reggae.

Is his claim to fame as a singer of undersea chantes enough to satisfy him?

"I'm a star on my home turf, in a place as close to paradise as anyone could find. At 32, I have accomplished what I've always wanted to do: write, sing and record and make money doing it. I've achieved that kind of incredible dream others twice my age haven't. I don't own a mansion in Beverly Hills, and frankly, have no interest in going on tour overseas. I'm famous enough—but more than that, I'm happy and love what I'm doing. I have a lovely wife, Geri, a terrific little boy, a sports car and a house by the Caribbean Sea. I don't need Nashville and television shows and all that. I've got everything I want now. I'm a very happy man," Barefoot says.

The Barefoot Man's simple beginning as a \$40 a week singing bartender performing calypso tunes for tourists on Grand Cayman is now an amusing memory for a songwriter with 11 albums on the market.

Divers visiting Grand Cayman won't need to be narced to appreciate Barefoot's humorous tunes, nor will they need C-cards to get on the Holiday Inn dance floor. They will have to arrive early, though. Barefoot's fans guard their dance floor with the enthusiasm of dusky damselfish. Barefoot might not take divers seriously—but they assemble each night to be gently insulted by his lyrics. 

photo/Geri Murphy

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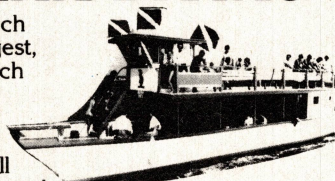
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DIVE MEDICINE COURSES

(Continued from Page 79)

the minimum impact that dive medicine courses can have on the average diver-on-the-reef.

Anita Bassett is the program coordinator of Human Underwater Biology (HUB), one of the major dive medicine programs. She explains some of the more far-reaching effects of such programs: "Several physicians who have been through HUB courses have become scuba instructors, and many are working to

For general course information contact:

Undersea Medical Society, Inc.
9650 Rockville Pike
Bethesda, Maryland 20014

For course schedules contact:

Dive-Med International
The Gruhn Bldg.
3001 South Hanover St.
Baltimore, Maryland 21225

Human Underwater Biology, Inc.
P.O. Box 5893
San Antonio, TX 78201

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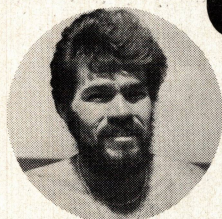
involve their medical communities in diving. They give lectures to emergency room personnel, participate in hospital staff in-service training sessions, and speak before their local medical organizations. All this, of course, results in more knowledgeable—and therefore better—treatment for divers."

A specific example of a community that has benefited from medical personnel being trained in dive medicine is in Austin, Texas, an area of lake and cave diving. A few years ago emergency medical technicians in the Austin area had no idea how to deal with diving problems. ("Oh, he can't need to be decompressed. He was only diving to 20 feet....") Then Bill Rush, Bill Sayre, and Roy Leamon took a dive medicine course, and realized the importance of such information in the Austin area. They began a program of instructing paramedics and EMT's. A person who surfaces with problems from a compressed air dive around Austin will be treated properly.

What it all boils down to is that the more that physicians and others in the medical community know about dive medicine, the safer we are as divers. And, remember, dive medicine courses aren't all fun and games, even though Dr. Paul Linaweaver does have a lecture entitled, "Why You Wee-Wee In Your Wetsuit." One course attendee responded, "I know why I wee-wee in my wetsuit. They keep us so busy I don't have time to go anywhere else!"

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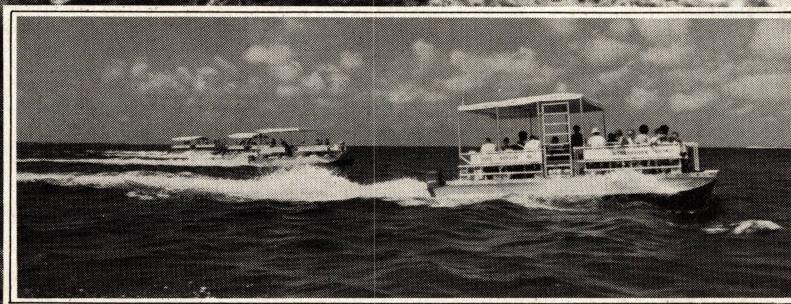
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JEAN-MICHEL COUSTEAU

An SDM interview with the quiet Cousteau reveals changes in the Cousteau society.

BY HILLARY HAUSER



photo/Jack McKenney

He shakes hands while flashbulbs pop and television cameras roll. He is slim, his European coat neatly sharp at the shoulders and his hair and beard elegantly tinged with gray. His big smile is infectious. People crowd around for autographs, elbowing with reporters to get just a word with him, to ask him a question, to express admiration. Everyone in

line cannot help but think that the elder son of Captain Cousteau will never have time to stop for a word, a handshake even, or his signature. But suddenly, there he is.

He smiles and wants to talk. He listens, poses for a picture, is delighted to sign a program, and he answers the questions. He *takes time*.

That's because Jean-Michel Cousteau is a nice guy. He really is.

For years he stayed in the background of the Cousteau operations. He was, as they say, doing his own thing while his brother Philippe was doing films with his famous father.

Then, Philippe died. In a tragic accident, the PBY seaplane Philippe was pi-



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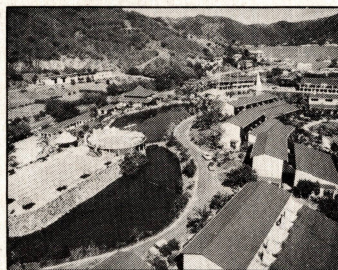
*Jim and Jane Caltrider
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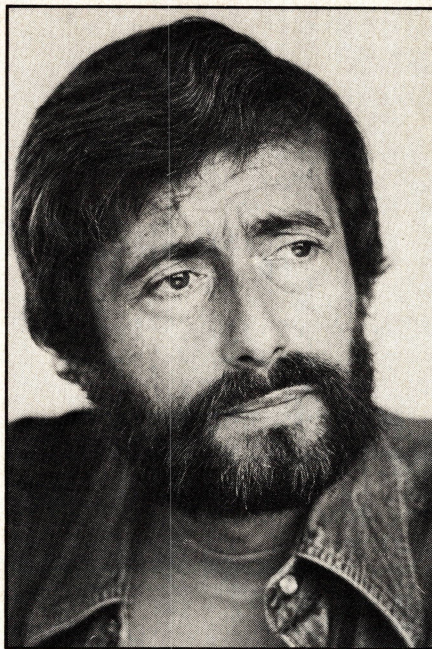
loting crashed during a routine landing on a South American river and the Cousteau family was irreversibly changed.

During a recent interview, Jean-Michel Cousteau talked about some of the changes that resulted from his brother's death, primarily the reorganization of the 150,000 member Cousteau Society. He also discussed some of the new projects the society is undertaking, explained his own role in the reorganization, and talked about the changes that have occurred in his personal life as a result of his increased involvement.

"I was doing my thing," he began. "I was involved in field trips, producing educational films and filmstrips, and gave about 100 lectures per year in the country. Every year I was taking the temperature of the U.S. It was very important to know how young people felt about the sea and the environment. It was mainly university students. I was totally rewarded that way—diving and lectures. I had more time to myself."

He said that in the February before his brother died his father had come as a guest of one of his projects out of South Carolina, to survey a marsh.

"It is an interesting thing. Call it coincidence, call it whatever," Cousteau said, "but my father said, 'You know, in two years we should consolidate the things we're doing.' We both agreed that such a merger—the Jean-Michel Cousteau In-



stitute and the Cousteau Society—would be feasible."

"Living Design [Jean-Michel's marine architecture firm] still exists, to manage the few assets it has," Cousteau told me, "but it is dormant. The Jean-Michel Cousteau Institute, non-profit, was merged with the Cousteau Society. So, I've been running projects that go through the soci-

ety. I still do some lectures, but not so many as before. . . I've had to get much more involved with the expeditions, just as I did in the 60's. I'm the number two guy in the company now, which means I run the show when father's not around."

Cousteau said that the society—personnel and all services (such as membership, correspondence and accounting departments)—have been shifted to Norfolk, Virginia. The operations of California, New York, Paris, Monaco and Marseilles, together with submarines, inflatables, helicopter, hovercraft, hot air balloon, and the *Calypso* were relocated to Norfolk, too—"all under the same roof."

"It's a much more efficient ship now," Cousteau continued.

He said that Norfolk was a "wonderful, logistical place" in that there was a naval base, NOAA, NASA and two major universities nearby. The society, he said, was presently building the Ocean Science Center on the Norfolk waterfront, which would house a public museum as well as society offices.

"Also, we hope it will be the site of a gathering every two years of the most knowledgeable people who can give us help in regard to the ocean," he said. "We have designed a format for the meetings and public shows."

How does he view the society?

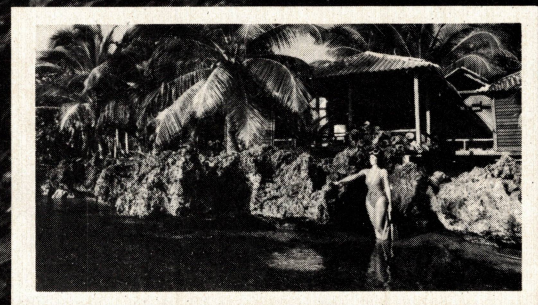
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(Continued on Page 96)

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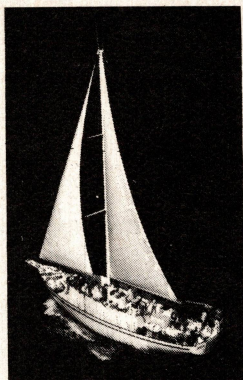
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JAMAICA UNDERWATER

The Arch, the Throne Room, Double Drop-off, Widowmaker's Cave, Giant Pillar Coral, Top of the Mountain Reef—Jamaica's top dive sites are now accessible to divers for low winter rates.

For more information on Jamaica, contact the Jamaica Tourist Board, 866 Second Ave., New York, NY 10017.

TRASHFEST '82

Trashfest '82, sponsored by the Texas Gulf Coast Council of Diving Clubs, was very successful. There were over 300 entrants and the amount of trash removed from the river exceeded all expectations: More than 7600 pounds. This included more than 650 shoes, 15,500 cans and bottles and 40,000 pop tops. The most unusual item removed from the river was an air conditioner. Other unusual items, a washing mashine, toys, signs and tools, were also found.

Since Trashfest '81, one short year ago, the one mile long Comal River has been bombarded with trash, as indicated by the above figures.

COCO VIEW RESORT

CoCo View Resort has remodeled its facility. Set on 700 feet of tropical beach it is on a private point and cay just outside of French Harbour on Roatan's south shore. The resort accommodates 26 divers in oceanfront, double occupancy rooms with private bath and ceiling fans. Restaurant, bar and lounge area are also on the premises.

The best of Roatan's south shore diving is provided aboard the 54 foot, twin diesel dive boat M/V *Explorer* which hosts two dives per day. A classic 19 foot double-ended dory is also available for diving, fishing or side trips. Day sails or charters may be arranged aboard CoCo View's 33 foot Morgan sloop, *Karma*. Unlimited beach diving is also offered.

For information and reservations, contact CoCo View Resort's U.S. office at 1713 Pasco Road, Zephyrhills, Florida 33599. 🌿

TROPICAL ADVENTURES

Tropical Adventures has scheduled its spring trip dates. They are: March 10-19, Roatan; March 29-April 16, Micronesia; April 7-16, Roatan; April 15-24, Cozumel; May 22-June 3, Bonaire/Aruba; June 13-24, Bonaire/Aruba.

For further information contact: Tropical Adventures, 624 Joshua Green Bldg., Seattle, WA 98101. 🌿

BONAIRE BROCHURES AND POSTERS

The Bonaire Tourist Office has new island brochures and posters available. The campaign theme is Beautiful Bonaire: In and Out of the Water.

The general island "welcome" brochure features Bonaire's attractive beaches on its cover, while the scuba brochure tells of its famous underwater attractions. A printed sheet lists hotel, scuba and snorkeling rates.

A large 24 x 36 inch poster features the island's famous flamingos, an underwater scene, local dancers and a beach scene. Two 12 x 36 inch posters feature scuba and snorkeling respectively.

Materials are available from the Bonaire Tourist Office, 1466 Broadway, New York, NY 10036. 🌿

DIVE IN AUSTRALIA PRESENTATIONS

David Loughnan, managing director of Dive in Australia, in conjunction with Qantas Airways, is now available in North America for guest appearances, film shows and major travel presentations. "I have two exceptionally well produced and informative slide presentations and Stan Waterman's latest film to show groups interested in planning a trip to Australia," said Loughnan.

For more information contact: Dive in

Australia, 680 Beach Street, Suite #498, San Francisco, CA 94109. 🌿

RUM CAY PACKAGE DAYS

The Rum Cay Diving Club is making some changes in its schedule. Starting April 17, dive packages will run from Saturday to Saturday instead of Sunday to Sunday. This will allow guests to have one day (Sunday) at home to relax before returning to their normal routine.

For further information contact: Rum Cay Diving Club, Ltd., 30 Colpitts Road, Weston, MA 02193. 🌿

DIVE BONAIRE COURSES

Dive Bonaire, at the Flamingo Beach Hotel, is offering six new diving certification courses (in addition to the daily resort course). The new courses are open water, advanced open water, deep diving, underwater photographer, equipment specialist and night diver. All successfully completed courses will earn the participant an internationally recognized diploma and C-card.

All courses will begin on Sunday morning and end on Friday afternoon, except for the two day U/W photo courses which are given on Mondays and Tuesdays.

Further information and course dates can be obtained by contacting Dive Bonaire, 520 W. State St., Ithaca, New York 14850. 🌿

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Complete scuba facilities available.

For further information write to:

Turks & Caicos Islands Tourist Board
P.O. Box 592617
Miami, Florida 33139



Instructor Training Courses

PADI ITC SCHEDULE

PADI ITC'S

January 22-30
February 26-March 6
April 6-18
May 14-22
June 25-July 3
July 30-August 7
September 10-18
October 15-23
November 12-20
November 30-December 11

(ITC Preparatory classes are run prior to each course)

UCI/PADI DIVEMASTER COURSE

January 8-16
February 12-20
March 26-April 5
April 30-May 8
June 11-19
July 16-24
August 27-September 4
October 1-9
October 29-November 6

*Resort Operations Specialist courses are run monthly in Grand Cayman Island



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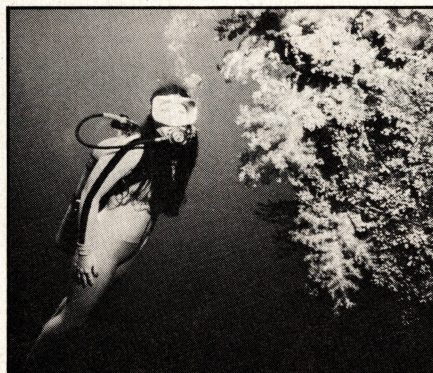
The PADI Instructor Training Course allows you to turn your hobby into an exciting full or part-time profession. It is a dynamic educational program designed to teach you how to instruct all phases of the PADI educational system from Basic Diver through Assistant Instructor.

CONTACT:

Underwater Careers Int'l
6023 Hollywood Blvd.
Ft. Laud./Hollywood, FL 33024
TOLL FREE 800-327-2740
in fla. (305) 981-0156

SEE & SEA TO PALAU/TRUK

See & Sea Travel, Inc. of San Francisco is offering a Micronesia Grand Slam adventure hosted by Carl Roessler in April. This sampler of Micronesian diving begins with ten dive days in Palau, follow-



ed by nine at Truk Lagoon and five at Ponape. Every dive day will include three tanks plus lunch aboard the boat to maximize photo opportunities. Divers may elect to participate in the Palau portion or the Truk/Ponape portion separately.

For further information contact See & Sea Travel, Inc., 680 Beach Street, San Francisco, CA 94109.

JENIK TO PINEAPPLE BEACH

Armando Jenik, writer, underwater photographer and captain of the 40 foot *Goldilocks*, is now based on the north side of St. Thomas at the recently expanded St. Thomas Diving Club at Pineapple Beach Resort. Dick Doumeng, president of the Club, states, "Because of the importance of this new facility, we have transferred the St. Thomas Diving Club's leading divemaster and captain to assure our diving guests the ultimate vacation."

For more information contact: Pineapple Beach Resort, P.O. Box 8267, St. Thomas, USVI 00801, (800) 524-2003; and St. Thomas Diving Club, Villa Olga, P.O. Box 4976, St. Thomas, USVI 00801.

ANTHONY'S KEY

Anthony's Key Resort, on Roatan Island, has acquired a new look as a result of a hotel renovation program and an expansion of dive facilities. The completion of these projects is celebrated with a new marketing program and the production of new promotional materials.

Owners/managers Julio Galindo, Luey McLaughlin and Peter Hughes have announced the opening of a new stateside office which will handle all nationwide bookings and requests on behalf of Anthony's Key. For information and a new brochure write or call: Anthony's

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Freeport, Grand Bahama (809) 373-1244

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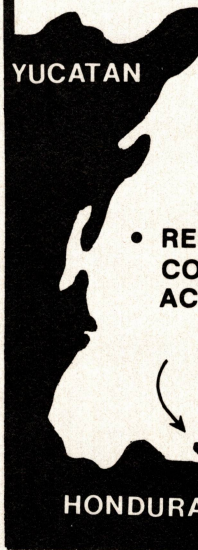
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Key Resort, P.O. Box 26556, St. Louis Park, Minnesota 55426; (800) 328-0734 and Minn. (612) 546-8461. 🌿

HOUGH PROMOTED

Virgin Islands Diving Schools has promoted Lisa Hough to educational director.

Originally from Plano, Illinois, Hough has been with Virgin Islands Diving Schools for years. She is a master scuba diver trainer with PADI, a dive control specialist instructor with SSI, and underwater instructor with both NAUI and YMCA.

Virgin Islands Diving Schools conducts tours as well as basic and advanced classes. For information, contact: Virgin Islands Diving School, Dept. L, P.O. Box 9707, Charlotte Amalie, St. Thomas, US-VI 00801. 🌿

LA MER TRIPS

La Mer Diving Seafari is offering a selection of dive expeditions. They will be operating exclusively from live-aboard vessels: The 79 foot *Coralita* to Marion Reef/Coral Sea; 70 foot staysail motor schooner *Encantada* to Galapagos Islands/Ecuador; 80 foot *Don Jose* to Sea of Cortez; 115 foot motor schooner *Sol* to Cocos Island/Costa Rica/Pacific Ocean. There will also be a special expedition with Dr. Sylvia Earle to the Galapagos Islands; a whale shark research and photo expedition with David Doubilet and Howard Hall; and expeditions with either Dr. Eugenie Clark or David and Anne Doubilet to the Sea of Cortez.

A schedule of departures of 1983/84 is available for individual and group arrangements. Commission and incentive programs are available for dive shops, clubs and travel agents.

For further information write: La Mer Diving Seafari, Inc. 823 UN Plaza, Suite 810, New York, NY 10017. 🌿

FISHEYE MOVES

Fisheye Photographic Services of Grand Cayman is upgrading its services. Fisheye is relocating to Cayman's Seven Mile Beach. Conveniently located at Trafalgar Place, a new shopping complex close to the Holiday Inn, Galleon Beach Hotel and the condominiums of Seven Mile Beach, Fisheye will continue to offer all services. These include: complete photo rental and sales, four hour film developing, photo courses, private portraiture and photo coaching, and full repair facilities that include the world's first Ikelite sanction allowing Fisheye to repair Ikelite strobes in only 24 hours.

New for 1983 will be a custom designed photo dive boat.

New accommodation packages have been arranged with condominium complexes on Seven Mile Beach.

For more complete details or bookings, contact: Ahuva Zaid, Fisheye Photographic Services, P.O. Box 1560, Grand Cayman, B.W.I. 🌿

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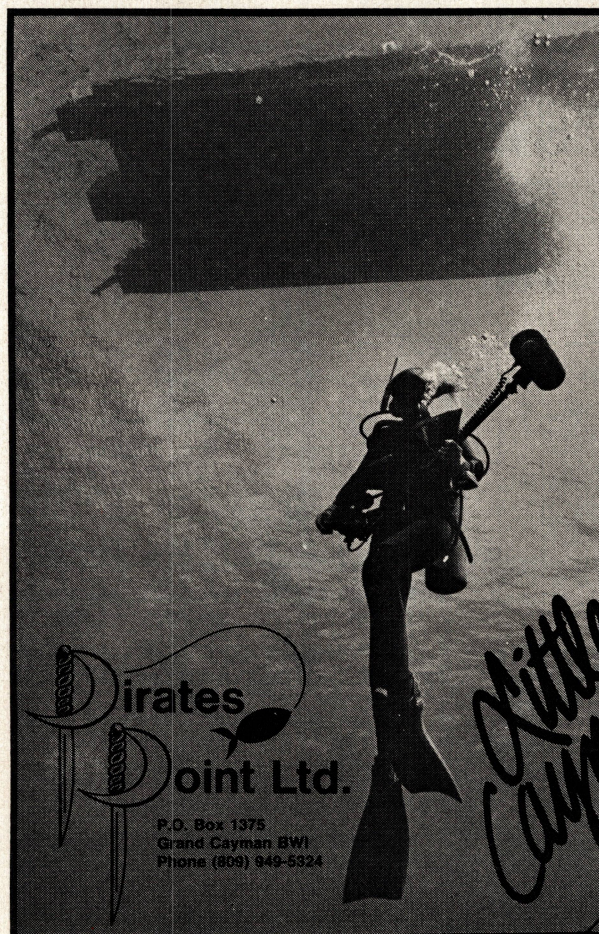
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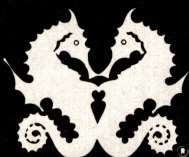
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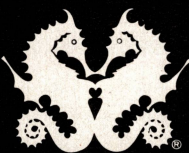
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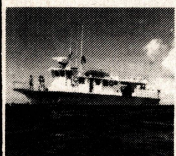
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Reef House Resort, Roatan

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Contact: Thelma Clark, Scubacamp Director
200 Ansel Road, Geneva, Ohio 44041
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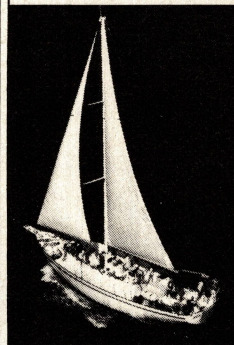
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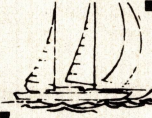
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CHURCH U/W PHOTO COURSES

Jim and Cathy Church will conduct their 1983 summer U/W photography courses at St. Thomas, USVI, for the third consecutive year. Six multi-level courses are scheduled for May 8 to 15, and 22 to 29; June 5 to 12 and 19 to 26; July 3 to 10; August 7 to 14; and September 4 to 11. A special two week course is scheduled for July 17 to 31, and a critter course, for repeating students only, is scheduled for August 21 to 28. All courses run from Sunday (arrival day) to Sunday (departure day), and include six 12 hour days of intensive instruction and hands-on U/W photography each week.

All courses feature the popular land/sea format. The first half of each course is based at Villa Olga, with classroom work and daily exclusive photo dives aboard the 68 foot *Mohawk II*, the flagship of the St. Thomas Diving Club. The second half of each course is held at sea, aboard the *Mohawk II*.

Both Jim and Cathy will be personally instructing the courses full time. A wide variety of U/W photographic equipment is available, and the Churches can furnish everything a student needs for the course. The only requirement is that students must be certified divers.

The photo course tuition includes text books, film processing and use of many U/W photographic items.

For more information, write directly to: Jim and Cathy Church, P.O. Box 80, Gilroy, CA 95020.

DECOM DIVING COURSES

A special series of five day decompression diving courses has been scheduled at the Underwater Explorers Society (UNEXSO) in Freeport, Grand Bahama. Dick Clarke, saturation diving superintendent and dive medical instructor with Oceaneering Int., will conduct courses beginning Jan. 24 and March 28. The course is restricted to four students.

The UNEXSO course emphasizes a conservative, disciplined approach, using state-of-the-art equipment and advanced techniques. Highlights include a dive in the recompression chamber and exploration of the famous Grand Bahama Ledge at the 200 foot level.

Additional information may be obtained from the Underwater Explorers Society, Box F-2433, Freeport, Bahamas; (809) 373-1244.

HABITAT DIVE SHOP

Habitat, on Bonaire, has completed its new dive shop. This full service facility includes three Mako 15 cfm compressors, a photo lab for black and white photography and E-6 color slide processing, projection room, instructional classroom,

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NEED AIR?

For a listing of air stations in your area, or the state you are planning to visit, check the DIVERS DIRECTORY in the back of this magazine.



two repair and maintenance rooms, a divers' work patio and gear storage area, and entertainment area.

Great care was also taken in the aesthetic planning of the shop, which is situated on top a 12 foot cliff overlooking the coral reef. It is an open air facility and includes in its design such details as archways, thatched roofs, and Columbian floor tiles.

Habitat is Bonaire's cottage style hotel, catering primarily to divers. With the completion of the new dive shop, Habitat has announced its programs for 1983 which include group and individual dive packages, all levels of PADI instruction, underwater photography instruction, and marine biology courses. For more information call (802) 496-5067 or write to: Habitat, P.O. Box 237, Waitsfield, VT 05673.

SUNSEEKER/COZUMEL

Sunseeker Holidays has added Cozumel, Mexico to its dive travel itinerary. "After many weeks of careful research, we have selected the El Presidente Hotel as our prime destination," stated Sunseeker's director, Fred Del Pozzo.

Fantasia Divers of Cozumel, managed by Danielle Ayala and Alberto Landero, has been chosen to operate the dive segment of the vacation package. Sunseeker has made special arrangements with

Fantasia, to pick up the divers at El Presidente's private pier and move them quickly to their chosen destinations.

People interested in making reservations should call Sunseeker Holidays toll free at (800) 422-2020; in New York the number is (212) 586-3441.

SPANISH COVE DIVE CENTER

Spanish Cove, Grand Cayman has completed a 1200 square foot dive center. This features a three boat slip, showers, rinse tanks, equipment storage areas, 200 aluminum tanks, two new



Davey 16 cfm compressors and 12,000 cubic feet of air storage.

Spanish Cove offers twice daily boat trips and regularly scheduled night dives aboard either a 36 foot Flattop or a brand new 38 foot diesel Delta. This latter boat carries 44 tanks, seats 20 divers, has freshwater showers, a swim platform, ladder and walk-through transom.

Spanish Cove is near the North Wall and less than 20 minutes by boat from a

multitude of popular dive sites off Grand Cayman's Seven Mile Beach. For complete information and a brochure, write to Spanish Cove, P.O. Box 1526, Salt Lake City, Utah 84110.

IMPOSSIBLE DREAM

The *Impossible Dream* celebrates her fifth anniversary on January 28. The *Dream* has two chase boats to aid tired divers or those in trouble and a crew trained to be helpful and keep safety in mind at all times. Her air station has 5000 cubic feet of air storage and an 18 cfm compressor.

For information call (305) 723-9312; or write: SeaVentures Int'l. Inc., P.O. Box 3271, Indialantic, FL 32903.

PHOTO BONAIRE

Photo Bonaire, at the Flamingo Beach Hotel, has completed a controlled power facility for recharging all brands of strobes and lights on 110-120 volt systems. Space is available for 60 units to be charged at a time and timers are available free of charge.

Photo Bonaire has also added wide-angle lenses to its rental line. One or two day wide-angle courses are available weekly and PADI U/W photo courses are held monthly.

For information contact: Photo Bonaire, 520 W. State St., Ithaca, NY 14850.

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NAUI — CMAS

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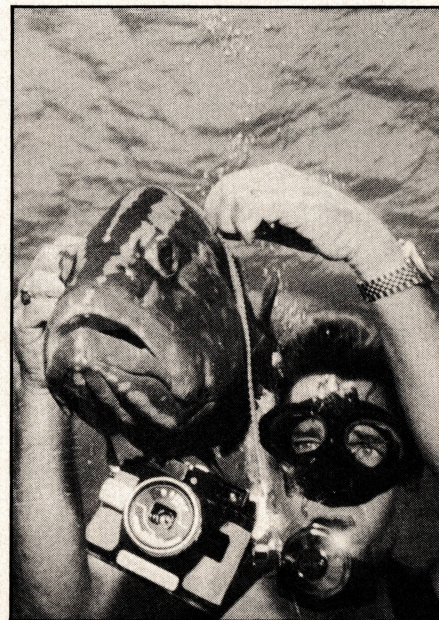
Blackbeard's Cruises' new 65 foot sailboat, the M/V *Morning Star*, will enter service this month. She will join the M/V *Sea Explorer* in operating Bahamas sail/dive cruises. Both vessels will sail from Miami year-round on week long and weekend cruises to the Bimini area of the Bahamas, the Berry Islands and Freeport/Westend Grand Bahama.

Group rates are available. For information contact: Blackbeard's Cruises, P.O. Box 522225 Miami, FL 33152.

THOUGHTLESS SHOT

Recently a tourist, visiting in Marsh Harbour, Abaco, Bahamas, rented scuba gear, and motored to the Bahama National Trust, Fowl Cay Park. Once there he put on scuba gear, took his Hawaiian sling (which is illegal to use while scuba diving in the Bahamas), and dropped into the clean, clear, warm water. Much to his surprise, a large Nassau grouper approached him, swimming up to be petted as it had done many times during the past eight months of visits with its friends, Captain Skeet La Chance, and other visiting scuba divers. This diver was different. He cocked his spear, and shot the fish.

Sympathies are extended to Captain La Chance, who established trust with the



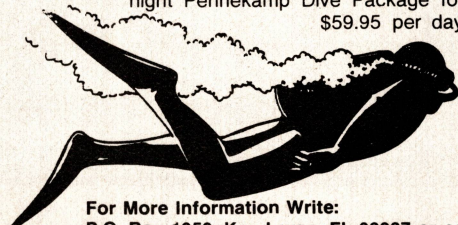
photo/Mike and Ann Adair

grouper and the divers who shared the experience with the grouper over the past months, as well as to the Bahama National Trust and the efforts of its supporters in establishing this pristine dive area.

Captain La Chance is in the process of building trust with new underwater friends in Marsh Harbour. Anyone interested please contact: Playtime Cruises Ventures, Inc., 1915 SW 21 Ave., Ft. Lauderdale, FL 33312.

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BRASSIL APPOINTMENT

Maura Brassil has been appointed to the post of sports promotion manager by the Bahamas Ministry of Tourism.

Brassil will represent the Bahamas at major sports promotions throughout the



U.S., Canada and Europe and will be responsible for setting up an 800 toll free hotline in the Coral Gables Bahamas Tourist Office for boating, aviation, diving and other Bahamas sports interests.

NEW MILBURN BOAT

Peter Milburn has doubled his fleet of dive boats. His brand new 34 foot Flattop, powered by twin 140 hp Johnson outboards will provide room for 16 divers.

The new boat will cater to underwater photographers with a special place for stowing cameras and a carpeted table for changing film. For more information on Peter Milburn's Dive Cayman Ltd., write airmail to P.O. Box 596, Grand Cayman, British West Indies.

OCEANQUEST/SPANISH COVE

Spanish Cove on Grand Cayman in the British West Indies has been added to the itinerary of OceanQuest, Inc. Spanish Cove is a personal kind of resort, offering a full complement of recreational and diving facilities. These include a restaurant and lounge, seaside freshwater pool and bar, and modern air-conditioned rooms.

Cayman Airways and Republic Airlines provide frequent, direct service from Miami to Grand Cayman daily. For toll-free land and airline reservations from your city of departure, call OceanQuest at (800) 526-1394 or in New Jersey or Canada (201) 744-5254.

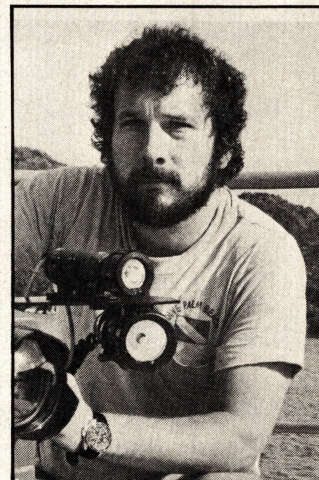
TROPIC BIRD/BVI FILM

OceanQuest, Inc., has just completed a film on the M/V *Tropic Bird* and the British Virgin Islands. Frank Shane shot a total of 5000 feet of film using a specially designed housing for the Beaulieu camera manufactured by Cinesub of Austria and distributed by MarinSolar, a German

firm specializing in underwater lights.

According to Shane, OceanQuest's president, the full color sound movie is available to dive clubs, shops, tourist boards, travel agencies and individuals wishing to promote diving in the British Virgin Islands. Weekly departures on the *Tropic Bird* from Tortola are arranged by OceanQuest.

OceanQuest is currently producing several other films and slide presenta-



tions. For information regarding OceanQuest's marketing or reservation services, call nationwide (800) 526-1394, or in New Jersey (201) 744-5254.

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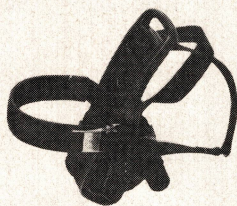
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COUSTEAU

(Continued from Page 85)

support of the scientific community," Cousteau answered, "because I want accuracy and I want the diving community to give an important share of its time to young people. That's why we have the Dolphin Log." This is a magazine the society puts out for family members (which constitute about 20,000 of the 150,000 members), and is primarily for children.

As for the scientific input to society projects, Cousteau was quite frank about a current tendency of scientists to criticize Cousteau efforts. He said the society refused to react to that criticism and that he still sought scientific involvement.

"There is a saying in French," he told me, "'Le chien aboie, la caravan passe,'" which means, 'The dog barks, but the caravan passes by.' We let them bark and keep going. What these people have yet to understand is that popularization of the ocean, which is what my father has done, is probably responsible for the majority of funds that scientists have gotten to do their research. We translate scientific jargon to popular language—we make it understandable—and public interest makes it possible for scientists to do their research. They are working very hard with never enough funds—to do what is important for all of us."

He said that scientific accuracy is important because the public demands it. "When we look at our first shows, done 15 years ago, we almost laugh. That's because the public is now more aware, more educated. We need to have more facts," Cousteau said.

He said that he was once given an award, which he dedicated to the "jealous scientist," because, as he said, he "owed it to them." It was the scientists who provided the facts, he explained, but it was Cousteau who popularized them and entertained with them.

On the subject of limited funds, the son of Cousteau said, "What should be known, is that for some bizarre reason the world believes Jacques Cousteau is a millionaire. Jacques Cousteau is broke and has been broke for 40 years. Every penny made, from royalties or whatever, any source of income—he puts right back into what he believes in—the ship, the expeditions, the functioning of the office. Instead of letting people go, he'll put money in to help them. No one with a business sense would ever do that. It is the Cousteau spirit. Cousteau is broke, always broke."

Then he had a positive afterthought: "It's stimulating in some ways," he said. "We're never comfortable; never take anything for granted."

He talked about the year long expedition to the Amazon, which the *Calypso*

undertook in February of this year. The plan was for the ship to travel 4200 kilometers up the river to the foothills of the Andes mountains. Several different teams will explore the various tributaries of the Amazon while another expedition will make its way by river raft downstream from the Andes to meet the *Calypso*. The results of the trip are to go into a couple of two hour television shows which are scheduled to air in 1983.

"The Amazon basin is as big as Europe," Cousteau said, "and it's the most important freshwater system in the world. We feel that before many of the species found there—and we're talking about two or three million species on land and water—are destroyed by increasing development, it's our duty to comprehend that freshwater system a little better."

Cousteau said he would alternate command of the expedition with his father, which suited him just fine. "I spend one-third of my time on expeditions, one-third on lectures, and one-third behind a desk," he said. "I like the first two best."

He described a film recently made by the society, released last March in a New York theater and entitled *Cries from the Deep*. He said it is a drama of whales and seals, fishermen against nature. "We've reached the point where there is not enough for everyone. Not enough for the animals, and not enough for man. We've tried to analyze, and we've found that in most cases it is a matter of poor management." He cited the decline of the Maine lobster and the humpback whale as cases in point and concluded: "Who's winning? No one."

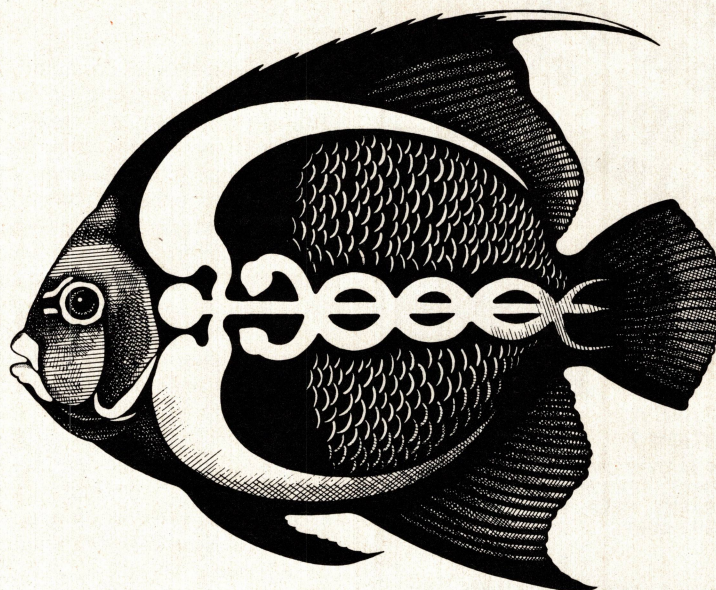
In spite of this gloomy message, Jean-Michel Cousteau is a person of bright, optimistic outlook. He is interested in people even though he has an aversion, even fear, of crowds ("I'd rather be in front of people than surrounded by them," he said). But, with each individual he takes time, and with typical concern he inquired during the interview after one young underwater photographer he remembered from a stage introduction he'd given him ten years before.

How he managed time for people, for the society and for his own interests, he said, was a matter of organization, but still there were frustrations. One was that he had to spend many more hours in airplanes than underwater.

"If I had any extra time to relax, I'd go diving—where it's warm and where I had to do no investigation."

In previous days he liked the luxury of lecturing on Princess cruises, which he described as an "excuse to get away," but said that it was now not possible to do that. "I administer 75 people," he explained, "contracts, lawyers, desk work." But then, his positive side emerging, he added: "Before, I had to fight for my business, for myself. Now, I fight for 75 people, and that makes it a lot more interesting. Before, it was closed, to myself. Now, it's open." 

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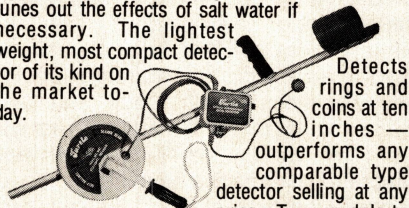
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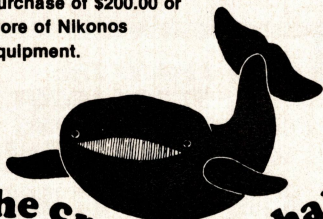
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ACUC UNDERWATER PHOTO CONTEST

The Association of Canadian Underwater Councils is hosting an underwater photography contest—deadline entry date February 1. Eight categories of photos will be judged: Best underwater photograph (marine life); (1) taken in Canadian fresh water, (2) taken in Canadian salt water, (3) taken in tropical waters. Best underwater photograph (wrecks, divers, man-made objects); (4) taken in Canadian fresh water, (5) taken in Canadian salt water, (6) taken in tropical waters. Best international photograph, (7) wide-angle, (8) close-up.

Prizes will be awarded at Underwater Canada '83 in Toronto March 24-27.

For information contact: Jim Kozmik, ACUC Underwater Photography Chairman, P.O. Box 242, Markham, Ontario L3P 3J7. >✉

PADI DECALS

While a diver's certification card indicates when he/she was trained, the level of training, and the instructor, up until now there was no effective way to indicate the type environment in which the open water training took place. This problem has been solved through PADI's new Environmental Orientation decals. These may be affixed to the C-card and indicate that the diver has made an environmental orientation dive with a PADI instructor, assistant instructor, or divemaster. The decals denote the year and the environment in which the dive took place—warm ocean, cold ocean or fresh water.

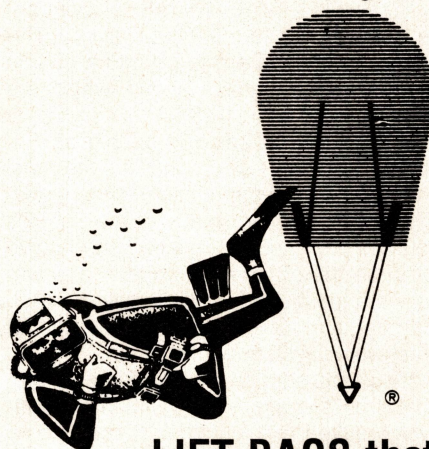
Dives made during any PADI diver certification course or in conjunction with PADI's new Scuba Review program may count as environmental orientation dives. In addition, divers may qualify for decals by arranging for environmental orientation dives with any PADI member.

More information on the decals, and the new Scuba Review program is available by contacting PADI, 1243 East Warner Ave., Santa Ana, CA 92705. >✉

ARTIFICIAL REEF

Active Divers Association, Inc. (ADA), a non-profit organization registered with the State of Florida, and the Dade County Department of Environmental Resources Management (DERM), recently began building an artificial reef four miles east of Key Biscayne, Florida. Dade County is the permit holder for this artificial reef site on which various derelict vessels and concrete mixer drums have been placed. Through the help of Ben Mostkoff, program coordinator, the Active Divers Association, Inc. will start to place 20 and 40 foot cargo containers and other items on the reef site to enhance offshore fisheries by increasing the habitat available.

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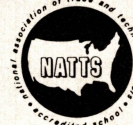
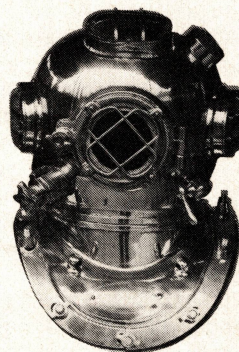
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The scuba diving community will also profit from the formation of a new area to dive and observe fish and plants in a new, growing community.

For additional information, please call Harry Parker at (305) 596-7997 (days) or 386-2649 (nights), or Rick Calder at (305) 552-7474 (nights). You may also contact Ben Mostkoff of the Department of Environmental Resources Management at (305) 592-2760.

ROMANS IN RIO

American archaeologist/treasure hunter, Robert Marx, is attempting to organize a scientific survey of a site he believes holds "dozens, if not hundreds" of amphorae from a Roman vessel dating from the second century B.C. The site is only 15 kilometers from downtown Rio de Janeiro, Brazil—in Guanabara Bay.

The survey and excavation will be undertaken with the aid of private financial backing, but all finds will be turned over to the Brazilian government.

DIVE SOURCE BOOK

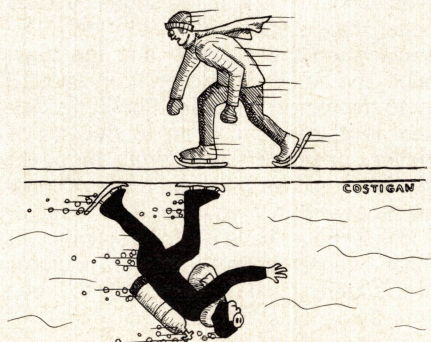
Joe Osterheim, director of the University of Arkansas Scuba Program, is requesting information on all periodicals, newsletters, and books pertaining to scuba diving and related fields. This information will be combined into a source book for those who are interested in diving information at all levels. If your organization puts out a diving related publication, he would like to hear from you. The information should include: A sample copy, subscription rate or cost (if applicable), advertising rates (if applicable), address of organization, number of issues per year or edition date.

Information should be mailed to: Joe Osterheim, Area of Health, Physical Education and Recreation, University of Arkansas, Fayetteville, Arkansas, 72701 by February 30.

GREAT LAKES HISTORICAL CLUB

The Port Washington Sunken Treasure Maritime Museum is helping form a dive club designed to promote the research, documentation and preservation of Great Lakes history. There are also plans for an auxiliary board at the Museum, made up of interested parties from the club.

For information contact: Maritime Museum, P.O. Box 64, Port Washington, WI 53074.



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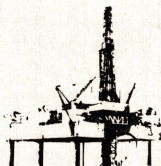
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SLIDE SHOWS

(Continued from Page 36)

projectors—the actual programming can be time consuming and sometimes frustrating. It is difficult to remember just how and when you wish to record each individual cue as you listen to the soundtrack and watch the images on the screen. The more complex the show, the more time required for programming.

Avoid long dissolve rates unless the slides require them, such as a slow dissolve in a sunset sequence. We heard one beginner say, "I paid over \$600 for this dissolve unit, and they're gonna see 'em dissolve." The dissolve rate must fit the music, the slide and the sequence. A quarter-second dissolve is a fast cut and is good with brisk music and fast action sequences. A one or two second dissolve produces a smooth transition and is good for general use with slow music. Three seconds or more is a long dissolve and should be used only when there is a special relationship between two slides that is enhanced during the dissolve. Generally, the more fast cuts you use, the more effective the long dissolve will be when it is truly needed.

Also, avoid overdoing special effects. Flips and flashes can add interest to your show, but use them sparingly. As with long dissolves, save special effects for the slides that require them. Don't dilute their impact by using them when they aren't needed or when they draw interest away from the story line.

The peak of the dissolve, or the special effect, is often most effective if it comes with the beat of the music or a fraction of a second before. If after the beat, however slight, the audience will know that something is wrong.

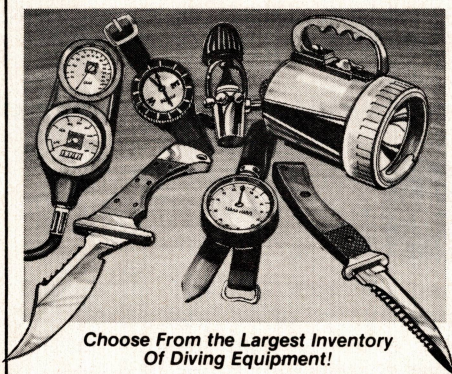
Long dissolves from dark slides to light slides are often best when timed with a crescendo (increase in volume). The crescendo implies a build-up of action or emotion and the slides should show this. Likewise, long dissolves from light slides to dark slides are often best when a crescendo subsides. The music implies that the action has been resolved and may be leading to a conclusion or transition.

LENGTH OF THE SHOW

Leave your audience wanting more. A slide show that is a bit too short is usually better than a show that is too long. Depending on the purpose and the audience, the length should be from about 3 to 15 minutes at the most. For light entertainment, several three to five minute shows, each with a different mood or theme, would be better than one 15 minute show. But if you opt for a longer show, it should have a strong story line or other interest appeal, excellent pictures and superb music if you wish to keep your audience's attention.

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Suppose you've been asked to give a half hour presentation to a group of non-divers, but you only have enough material for two or three short sound/sync shows. Don't worry, a full half hour of sound/sync slide show is too much anyway. You can begin with a casual, single projector introduction with live narration. If you have extra slides for this, fine. Otherwise, manually advance one of your two projectors so the audience sees every other slide from the first part of your first show. Use this warm-up presentation to point out the diver's equipment, identify the sea life and answer the three inevitable questions: How deep do you go? How long do you stay down? And, have you ever seen a shark?

After the talk-through presentation, run your sound/sync show. Because the audience now has some understanding of what they are seeing—how tiny the flamingo tongue is, etc.—they will enjoy the show more because they can relate to it. Also, you won't have people whispering, "What's that?" at awkward times, interrupting the continuity of the show. Don't worry about their seeing some of the slides twice. The impact of music, dissolves and other effects will add a new dimension to the slides.

If you use darkroom trickery or other special techniques such as double exposures that may confuse the audience, give a brief explanation of the techniques before the show. If a show is loaded with special effects, don't show it first. Begin with one that introduces your audience to the U/W world comfortably, then finish with your more creative show.

Don't worry if the audience begs for more pictures. This is exactly how you want them to feel when the show is over. The joy they experienced after the first few short shows will die on the vine if they become saturated and bored. ❧

DIVE MANUSCRIPTS

Rowe Publishing Corp. invites all writing divers to submit book manuscripts. Through 1983 Rowe will be reviewing and selecting projects for possible publication. Authors should send materials and queries to Sheila Shane, Adms. Editor, Rowe Publishing Corp., 3906 N. 69th Street, Milwaukee, WI 53216. Topics of interest are: dive information, how to, regional dive guides and travel works. Do not send magazine articles. ❧

FIT SCUBA HEAD

Florida Institute of Technology, Jensen Beach Florida, recently appointed Drew Richardson to division head for the scuba department. He is responsible for the development, safety, operation and content of all scuba training associated with the underwater technology department.

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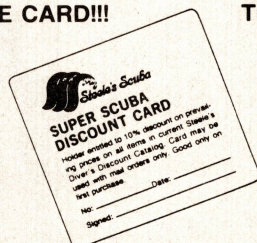
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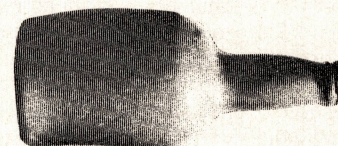


ARTIFACTS

BY HOWARD B. TOWER, JR.

Dave and I turned and saw an elderly gentleman on the porch of his mobile home. "You're late," he said, "them divers that was here two or three summers ago really made a haul. Let me show you something." The man went inside and appeared moments later holding an aqua, pre-machine medicine bottle. He walked over to us. "This here was made in the 1800's. One of them divers give it to me cause I treated 'em right."

We introduced ourselves and explained the reason for our trip to Kings Ferry, Florida. This small community on the Saint Marys River has roots deep in the region's colonial past. It was established in 1763 and served as a ferry crossing and fort site during the Revolu-



tionary War. In 1866 a large lumber mill was erected. Sailing vessels from many nations filled their holds with timber and related products, then plied the river's deep channel to the Atlantic. Naturally, we considered Kings Ferry a prime dive site for artifacts. The old man shared the events surrounding those first divers:

During the summer of 1967 or 1968 three divers brought a small barge downstream to this river community. They moored at the two large pilings on the west edge of town. For a week the men explored the black water, concentrating on two areas. The first was a spot 50 to 75 yards east of their barge. The second

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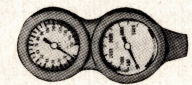
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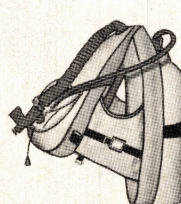
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was the area in front of the prominent two story house situated at the eastern edge of the town waterfront. In six days of diving these men recovered scores of gold coins and two gold pocket watches. A few antique bottles were recovered and given to local residents.

We thanked the gentleman for his information and continued preparations for our dive. Minutes later Dave and I stepped into the cold black water, cast our floats into the current, and wished each other good luck. I was a bit downhearted knowing I was following in other divers' footsteps. The 50°F water seeping into my wetsuit didn't help matters—it was January 25, 1970.

I stepped off the channel edge and submerged into the dark, tea-colored water. My light beam penetrated three feet. The channel wall consisted of a series of limerock and marl ledges like giant stair steps. Minutes later I rested on a pile of ballast stones at 30 feet. I could hear Dave's regulator in the darkness. Next I conducted an exploratory search sweeping back and forth from the channel wall to mid channel. In five minutes I had recovered three antique bottles. Pieces of china and glassware were scattered everywhere on the limestone and gravel bottom. Elated, I surfaced to check my position relative to the shore. Dave, who forgot to bring a hood, was at the shore, cold but excited. I terminated my dive but was happy knowing the site was loaded with artifacts.

For me, that first dive in the Saint Marys River was the beginning of a marvelous underwater adventure which continues this day. During the last 12 years divers associated with the author have recovered the following quantities of artifacts and fossils from the black water: 2800 antique bottles and pottery pieces crafted between 1600 and 1910; 750 coins dating between 1700 and 1920; 300 clay smoking pipes (18th and 19th century); 800 prehistoric shark teeth (3 to 6 inches in length); 50 projectiles from smooth bore and rifled cannon.

Other discoveries include dozens of firearms—everything from a 16th century hand cannon to modern revolvers, china, nautical relics, and arrowheads.

Is the river worked out? Not at all. During the summer of 1982 divers knowledgeable in the region's history made excellent finds including an 1836 50 cent piece, a flask, an 18th century anchor, four inch shark teeth and many every day objects associated with 18th and 19th century life.

The reason for this nearly inexhaustible supply of relics and fossils stems from the river's rich, tumultuous past, and geology. The river channel is limerock and hasn't moved an inch in two centuries. In most areas the bottom is bare rock or covered with only a few inches of sand/gravel. Thus, thousands of objects—bits of human drama from four centuries—lie exposed, waiting for div-



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Eons ago this limestone subsurface was the floor of a primeval sea. As the river cut through this material thousands of giant prehistoric shark's teeth have washed into the channel. Today these magnificent specimens, averaging four inches in length, may be found by a diver who searches the river between U.S. Highway 17 and St. Marys, Georgia.

The following is a synopsis of major



historical sites along the St. Marys, and associated finds:

Traders Hill is the head of navigation and was settled in 1754. The site is approximately eight miles west of Folkston, Georgia and is accessed by a graded sand road. Local residents know the site well as a fishing and swimming area. The bottom averages about 15 feet deep and is largely bare rock. It's a good spot for the inexperienced diver to become acquainted with dark water diving. Past finds include a Kentucky-style flintlock rifle, a brass ship's bell and 18th century free-blown bottles.

Colerain, situated on the Georgia side of the river, was the site of a fort and trading post built in 1790. River depth averages 25 feet and the bottom varies from bare rock to sand and logs. Colerain covers 200 yards of waterfront. Interesting finds include nine pound solid shots, a bayonet and colonial pottery. The site is accessible only by boat as the land is posted. Local divers launch at Orange Bluff, on the Florida side two and one-half miles downstream.

Orange Bluff, often called the pipe site, is two miles west of Kings Ferry. A large sawmill was erected on the bluff after the Civil War. Pilings extend 100 yards along the waterfront. Hundreds of clay smoking pipes have been recovered by local divers; more than any other site on the river. Other artifacts recovered include scores of patent medicine bottles. The best area to search is a large sand/gravel bar located in the channel center near the sharp bend east of the bluff. Currents cause the bar to constantly shift, exposing hidden treasures. Average depth is 25 feet. Local residents use the bluff as a campground.

Kings Ferry is where it all began. This Florida community is northeast of Hilliard, Florida where State Road 115A dead ends. The mysterious group of divers who preceded us did not find all the treasure. One final drama remained for

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this writer and his companions. In 1972 divers began to uncover Spanish coins dated between 1773 and 1794. Then, by chance, one diver found a single coin resting on its edge in gravel. He fanned the gravel and moments later was staring at a carpet of coins.

After filling his goodie bag, he surfaced in the middle of the river. A person was sitting on the bank. The diver, who was nearsighted, assumed it was his friend, a local property owner. Waving the bag of coins, the diver shouted his discovery—a big mistake. The teenage preacher's son could hardly believe his ears. News of the discovery traveled like wildfire. The atmosphere at Kings Ferry was electric. Everyone worked like beavers locating those dark gray disks which were scattered over an elliptical area 55 feet long.

Within a week divers came from as far as Alabama. Tempers grew short. A businessman hired three divers from a Florida treasure salvaging company. They brought a small barge, elaborate metal detectors and explosives. One out of state diver was so enraged that he pulled a pistol and fired over their heads. The salvagers strapped on their own pistols and strolled about the barge like cowboys—drinking beer while waiting for darkness to begin work.

I learned this group did not have a permit to use explosives and called the Georgia and Florida Fish and Game Commissions and the U.S. Army Corps of Engineers in effort to stop them. However, no one responded. Charges were set and detonated in the sand and gravel covering the coins. According to a local resident the coins recovered filled a half gallon container to the brim.

The Brickyard, four miles east of Kings Ferry, is another site of historical interest. All the bricks for Fort Clinch, a massive coastal fortification on Amelia Island, were manufactured here during the 1840's. Divers have found projectiles from the Revolutionary and Civil Wars. Much of the bottom is covered with sand and logs which shift with the current, exposing objects of antiquity. Depth averages 30 feet.

St. Marys, Georgia, considered to be the second oldest city in the United States, is a dive for the mature, seasoned diver. This saltwater site, located near the mouth of the river, was featured in the May, 1981 issue of SKIN DIVER Magazine. Spanish pottery dating to the 16th and 17th centuries has been found along with 18th century English rum bottles. Please remember this is a winter dive site. During the warm months sharks and sea turtles follow commercial fishing vessels to port and will attack divers in the murky water. I was the victim of an attack by a 200 pound sea turtle during summer 1971 and my partners also had close calls with other marine predators. The bottom is compacted sand and gravel with depths to 35 feet at high tide. The best area to search is in front of the wharf

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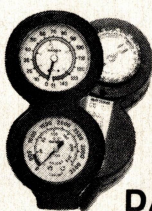
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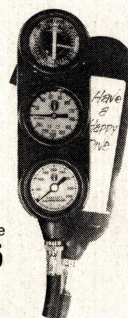
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BLACKWATER ARTIFACTS

at the end of main street.

The sites mentioned in this article are easy to locate as they are popular recreational areas. A county maintained sand road connects Orange Bluff, Kings Ferry and the Brickyard. For divers wishing more detailed information the best bet is to purchase U.S. Geological Survey maps. They may be obtained from: Distribution Section, U.S. Geological Survey, 1200 South Eads Street, Arlington, Virginia 22202.



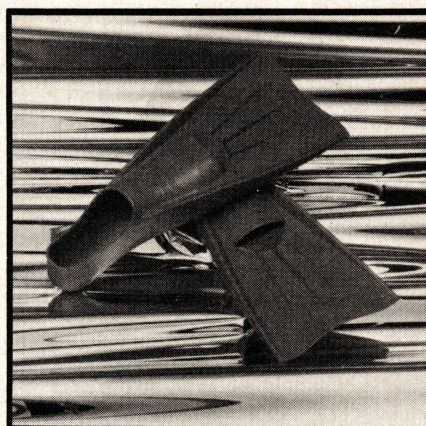
Public libraries in major cities in Florida and Georgia have several books pertaining to history associated with the Saint Marys River. Two excellent references for in-depth research are the *St. Marys River: a Boundary* by Lawrence Mayo, and *The St. Marys: A River of Turmoil* by Samuel Hood.

Exploring the St. Marys is not difficult for the experienced diver. The water is pure: It is black from tannic acid leached from tree roots and leaves. Visibility is never more than three feet *with* a light. Local divers use an audible signal such as three bangs on a tank to communicate distress or a major find to partners. A surface float is considered a necessity along with a full wetsuit for body protection against snakes and leaches. Water temperature varies from 50°F in winter to 85° in summer. The nearest dive shop is in Jacksonville, Florida, 35 miles south of the river. The Aquifer Dive Center, 4564 Atlantic Blvd., is a short distance from interstate routes accessing the city and is open Tuesday through Saturday. Inexpensive motels on U.S. 1 offer accommodations to visiting divers.

Fish and Game officials from Florida and Georgia patrol the river and insist that a divers flag be displayed. In the past they have helped my partners and I locate sites for diving and have no objection to artifact recovery. So, if you like diving a wild, primitive river for artifacts and fossils, come visit the Saint Marys—a cradle of Southern colonial history.

WOMEN IN DIVING DIALOGUE

Aqua-Craft, Inc. recently hosted a women in diving dialogue at the Westin South Coast Plaza in Costa Mesa, CA.



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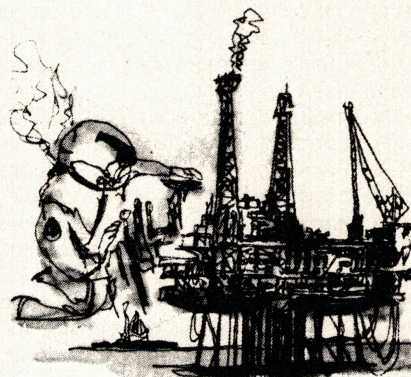
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Fifteen female diving professionals met for a half day with Aqua-Craft's president, Roy Slavin, special projects consultant and former president, Bill Martin, and marketing manager, Dan Walsh. Dennise Kane, from the marketing department, served as dialogue moderator.

Most dialogue participants felt that concern for public opinion, fear of physical



inadequacy and a lack of positive role models were major factors restricting the entrance of more women into sport diving. It was their recommendation that manufacturers and dive stores work together to enhance the image of the active female diver. They perceived a need for developing and promoting a family-oriented image for the industry.

Aqua-Craft will be working through DE-MA to support advertising campaigns designed to promote scuba as a family affair and to encourage more female participation in the sport.

WETSUIT RESTRICTION STUDY

Commercial Diving Center's facilities and personnel were recently utilized during the second phase of a study conducted by the University of California. UCLA's Department of Kinesiology wanted to determine wetsuit chest restrictions on tidal volume in a dry hyperbaric environment. The nature of the study was human work performance at one atmosphere and three atmospheres (ATA) with and without a wetsuit. An abstract of this study is available by contacting Dr. Glen Egstrom, Director of Research and Development, Commercial Diving Center, 272 S. Fries Avenue, Wilmington, CA 90744.

U/W SOCIETY OFFICER

The Underwater Society of America has appointed Bill Stacy to director of catch records. In this position Stacy will be keeping all catch records, including free diving saltwater and freshwater, and scuba diving saltwater and freshwater. The position of saltwater spearfishing director of records has been eliminated. Stacy is currently the president of the Oklahoma Council of Underwater Divers.

For further information on the society or its officers contact: George Rose, President, Underwater Society of America, 849 W. Orange Ave., #1002, So. San Francisco, CA 94080.

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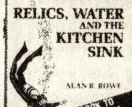
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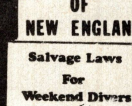
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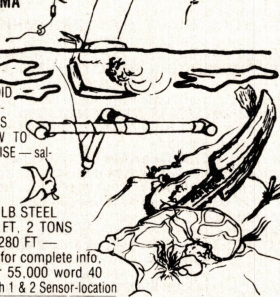


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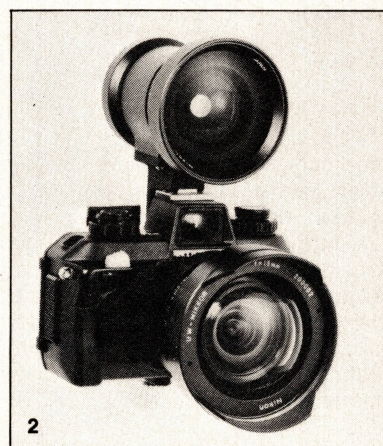
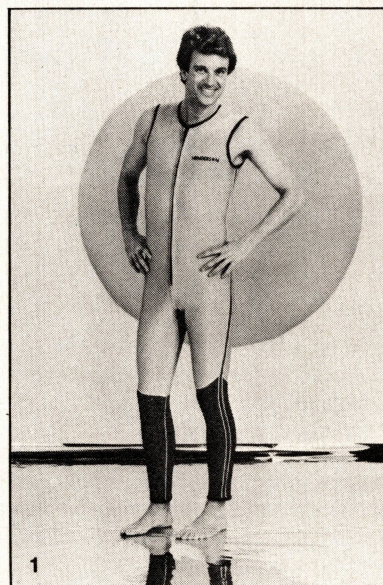
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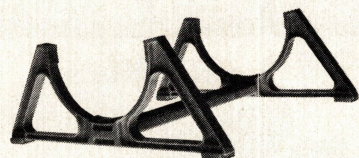


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1 Wetsuit—The Henderson Tropic Suit is made of one-eighth inch neoprene with a shiny Lycra outer surface. Standard color combinations are white/black, gray/red and blue/gray. Other combinations are available. Sleeveless, zippered farmer john, \$163.95. Jacket \$133.95. Available at Henderson dealers.

2 Wide-Angle Lens—The new UW-Nikkor 15 mm f2.8N lens features a design which allows it to work in conjunction with the automatic exposure system of the Nikonos IV-A camera. U/W it gives a picture angle of 94 degrees and extensive depth of field. Lens, \$1150. Viewfinder, \$363. From Nikon.



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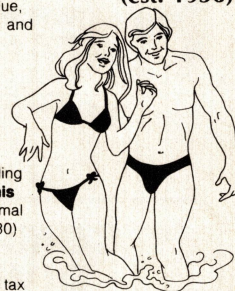
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by Robert L. Straight



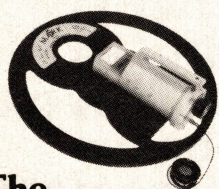
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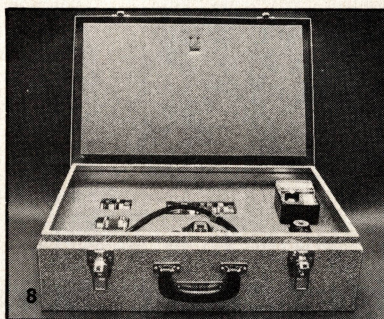
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6 Bolero Suit—The Tempest jacket/coverall combo wetsuit is made of one-eighth inch Rubatex Sof-Cell 5000 neoprene. Zippered bolero jacket has high collar, and sleeves allow free arm movement. Coveralls have Velcro shoulder strap. Knee pads standard. Royal blue/navy. \$192. From Parkway dealers.

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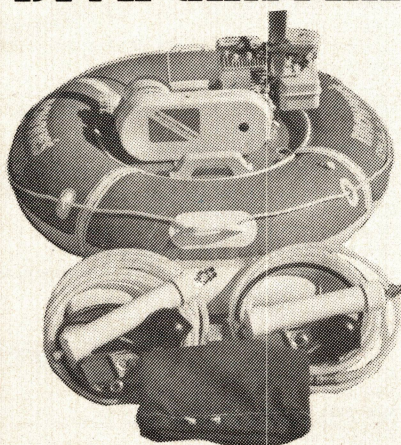
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Before Midnight January 23

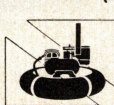
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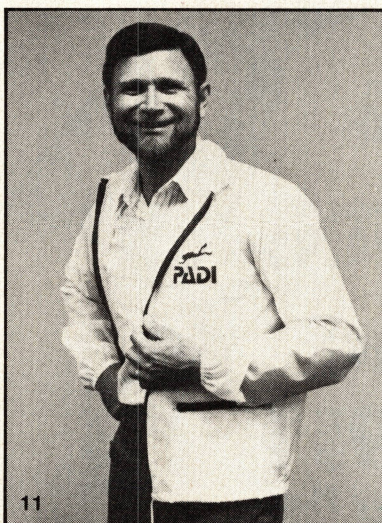
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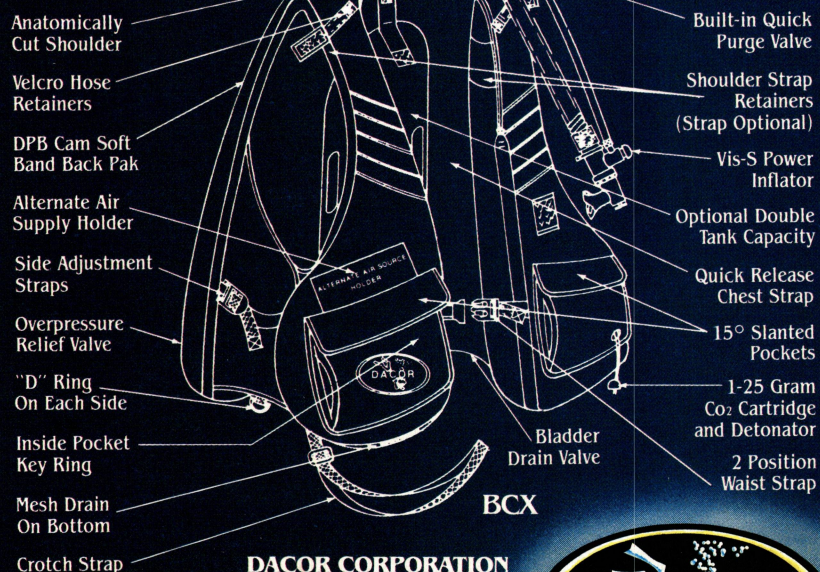
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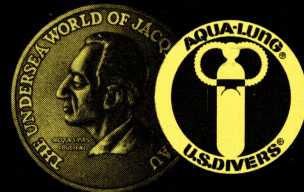


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